THE ARCHITECTURAL FORUM

ARCHITECTURAL
ENGINEERING
&
BUSINESS

IN TWO PARTS PART TWO

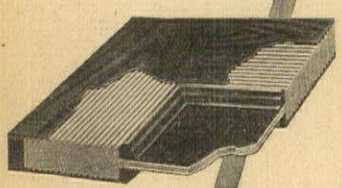
MAY 1931

A complete R-W installation . . . .

FoldeR-Way equipment and R-W compound Key Veneered Doors

"Quality leaves its imprint"

West End House, Boston, Mass. R-W FoldeR-Way equipment here includes solid brass hardware and R-W Compound Key Veneered doors



The beauty and smooth operation of R-W Compound Key Veneered Doors are lasting. Sagging, warping, swelling, shrinking are practically eliminated by tongue and groove method of applying veneer. These famous doors are now made exclusively and sold only by R-W for FoldeR-Way partitions

This is a "de luxe" partition door installation, and it is a complete R-W job throughout. It enables two or more small rooms to be thrown open into one large room; makes possible the large room to be quickly converted into several small ones . . . quickly, easily, noiselessly.

R-W FoldeR-Way equipment folds and slides partition doors to either side. This equipment operates smoothly and gives continued trouble-free service. Every inch of space is utilized and every architectural need is met by FoldeR-Way equipment.

Consult an R-W engineer about any type of doorway problem. No door is too large or too small for R-W service. Write today for Catalog No. 43.

over 50 years 1880 / 1931

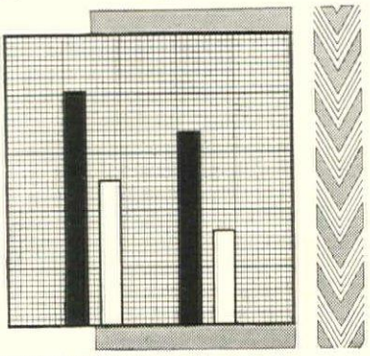
Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"

AURORA, ILLINOIS, U.S.A.

Branches: New York Chicago Boston Philadelphia Cleveland Cincinnati Indianapolis St. Louis New Orleans Des Moines Minneapolis Kansas City Los Angeles San Francisco Omaha Seattle Detroit Atlanta Richards-Wilcox Canadian Co., Ltd., London, Ont. Montreal Winnipeg

How OMICRON adds to the strength of concrete floors



OMICRON increases tensile and compressive strength of all cement mixes.

American Insurance Union Bldg., Columbus, Ohio 500,000 sq. ft. of Master Mix Floors

Squibb Building New York City Omicron containing Master Mix used

Over 550,000,000 square feet of Masterbuilt Floors have been installed in Master Builders' twenty-one years successful record as America's pioneer and leader in specialized concrete protection and decoration.

OUR CATALOGUE IS FILED IN SWEET'S

As cement mixes hydrate, waste soluble salts, non-cementitious in character, are formed. Omicron—the discovery of Master Builders Research Laboratories—added to the mix, largely replaces these salts with useful, cementitious products. Strength is substantially increased.

By largely eliminating the soluble salts, Omicron also places a definite check on corrosive disintegration. For it is these salts that are etched away by corrosive agents, intensifying the destructive action of abrasive wear.

Floors in all industrial and some commercial buildings are actively affected by corrosive disintegration. All floors are unfavorably affected in some degree. For mild corrosives are present everywhere. Hence the positive advantage of specifying corrosion-resistance for all concrete floors.

By specifying the correct Master Builders Omicron-containing hardening, coloring or waterproofing concrete ad-mixture, you make sure of the utmost efficiency in protection and decoration. For Omicron (a) checks corrosive disintegration, (b) increases floor strength, (c) permits the use of a low water-cement ratio and (d) makes a smoother, denser floor finish possible.

The soundness of the Omicron principle has been established by exhaustive laboratory tests; the acceptance of that principle indicated by well over 43,000,000 square feet of Omicron-protected Masterbuilt floors already installed.

May we send you detailed evidence establishing the practical value of Omicron in lowering the "square foot cost per year" of concrete floors?

OMICRON

available exclusively as a basic ingredient in

Metalicron:	Integral water absorbent metallic hardner. For heavy duty industrial floors. Plain, colored or slip-proof.
Master Mix:	Liquid integral hardener for commercial floors. Hardens, dustproofs and waterproofs.
Colored Masterbuilt Floors:	Integral coloring, hardening, dustproofing and waterproofing ad-mixtures. Three types.

"write corrosion resistance into every concrete floor specification"

The MASTER BUILDERS Co.

FACTORIES: CLEVELAND, BUFFALO, IRVINGTON, TORONTO

CLEVELAND, OHIO

SALES OFFICES AND STOCKS IN ALL PRINCIPAL CITIES

IN CANADA: THE MASTER BUILDERS COMPANY, LIMITED, TORONTO AND MONTREAL.

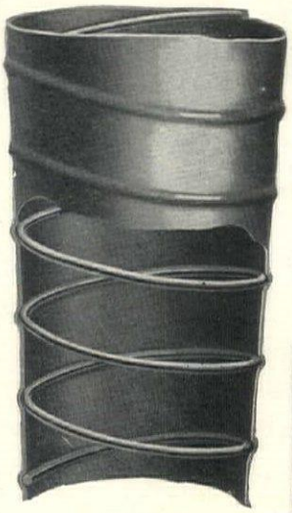
In Memphis on Raymond Concrete Piles

THE MUTUAL LIFE ASSURANCE BLDG.
MEMPHIS, TENNESSEE
422 STANDARD RAYMOND PILES—12,238'.
Architects and Engineers—BOYER & BAUM.
Gen'l Cont.—KEELEY BROTHERS.

Where foundations must be reliable—where the reputation of Architect and Engineer and the profit of the Owner depend on what supports the building—so many Architects, Engineers and Owners agree on Raymond Concrete Piles in so many cities that the evidence of their value is overwhelming.

"A Form for Every Pile—A Pile for Every Purpose"

The RAYMOND Heavy Steel Shell with Spiral Reinforcing



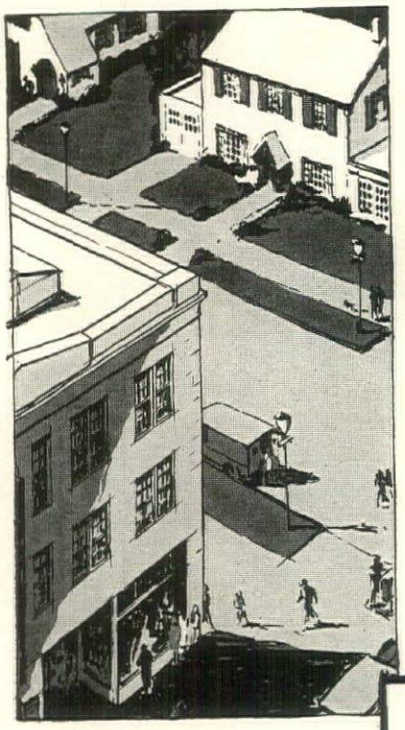
This shell is left on every pile in the ground for protective purposes

RAYMOND CONCRETE PILE COMPANY
"A FORM FOR EVERY PILE — A PILE FOR EVERY PURPOSE"
140 CEDAR STREET
NEW YORK
111 W. MONROE STREET
CHICAGO
OFFICES IN PRINCIPAL CITIES...
AND IN CANADA
RAYMOND CONCRETE PILE COMPANY LTD., Montreal, Canada

RAYMOND

KEWANEE

TYPE "R"



Steel BOILER for Smaller BUILDINGS

Just as the bigger structures have for years relied upon Kewanee Steel Boilers for dependable, low-cost heating, NOW can the smaller buildings pin their faith on the Type "R" Kewanee.

Included in it are many exclusive features—both of design and construction—to make it the best possible boiler investment for the smaller buildings.

All of these insure more heat in the building with less fuel in the basement—actual tests proving that Type "R" has an operating efficiency remarkably high for a small heating boiler.

Of outstanding interest are such features as:

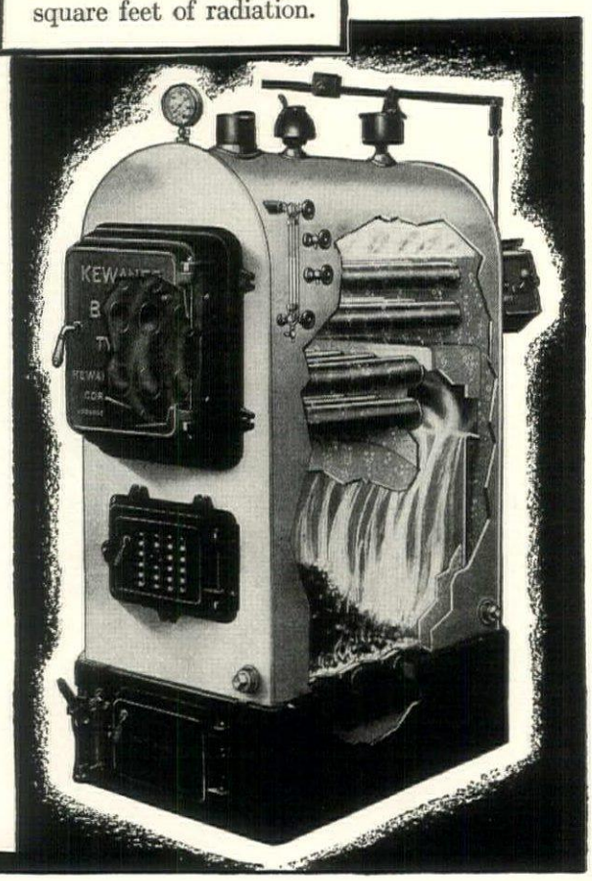
A bigger, higher combustion chamber.

The right-side-up Crown Sheet.

Long two-pass travel of gases.

More generous steam space.

For every fuel—COAL, OIL or GAS—in sizes to heat from 370 to 1960 square feet of radiation.



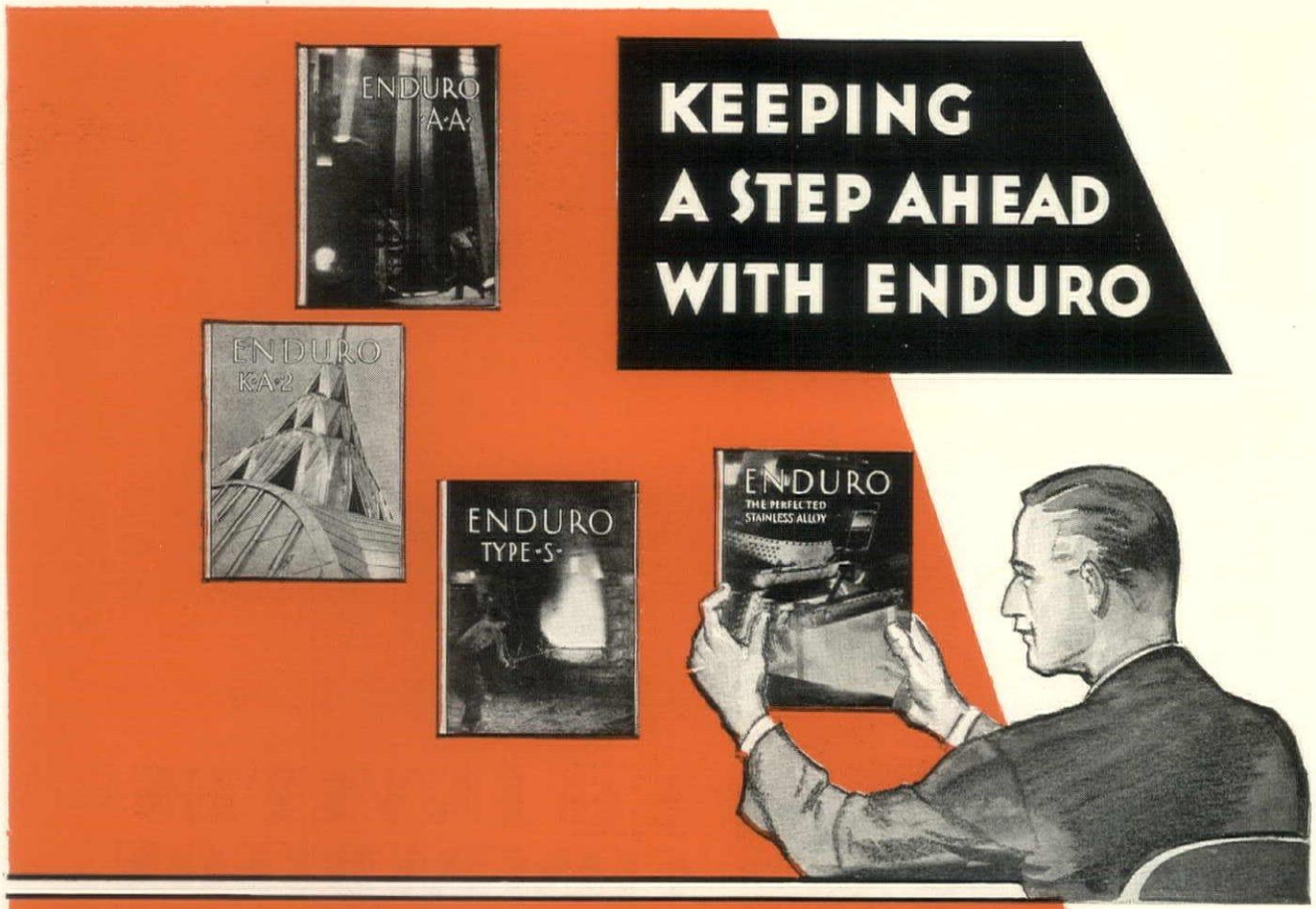
There is a Kewanee Steel Boiler for every budget and every heating purpose. Consult one of our Sales Engineers for the interesting particulars.

KEWANEE BOILER CORPORATION

division of American Radiator and Standard Sanitary Corporation

KEWANEE, ILLINOIS · *Branches in Principal Cities*

MEMBER OF STEEL HEATING BOILER INSTITUTE



KEEPING A STEP AHEAD WITH ENDURO

BRING YOUR FILE ON "STAINLESS" UP TO DATE

Because no single type of Enduro, Republic's Perfected Stainless Steel, can meet all the conditions of the building trades and industry, a series of booklets has been prepared for your information, containing basic facts concerning the various types now available.

Your records will be more complete with this data in your file. Ask for any or all of the following:

Booklet 85—General Information on Enduro, its properties and uses.

Booklet 86—Enduro KA2, for corrosion resistance to atmosphere, salt air, food and dairy products, nitric acid, etc. For application requiring ductility and good working qualities generally.

Booklet 87—Enduro AA, for application where corrosion resistance takes precedence over high strength or toughness.

Booklet 88—Enduro S, for applications requiring moderate corrosion resistance with high strength and toughness.

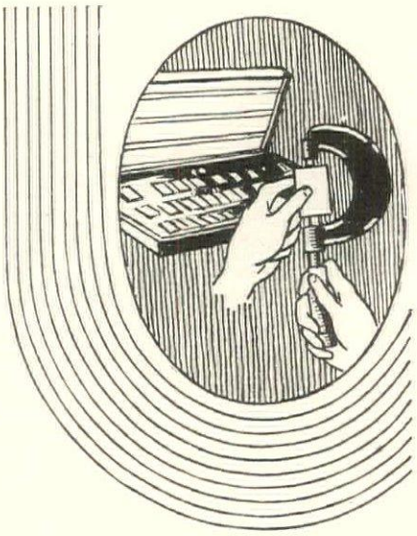
Upon request your name will be placed on a list to receive similar bulletins issued from time to time as information on other types of Enduro-Nirosta, is made available.

ENDURO
REPUBLIC'S PERFECTED STAINLESS STEEL

Enduro is sold only through Republic Sales Offices and Authorized Distributors.

CENTRAL ALLOY DIVISION
REPUBLIC STEEL CORPORATION
MASSILLON, OHIO

Periodic checking with a known standard of accuracy prevents errors in production.



ES INVITES COMPARISON

In the selection of elevator equipment, it is equally important that a standard be set for *quality* of service. Signal systems must operate with minimum attention and maintenance not for three or four years, but for the life of the building.

Doors must open and close quietly, without bucking and strain, day in and day out without undue wear on the door operating equipment.

These operations can be assured in advance— by giving a thought to the standard by which you judge this important equipment. Study the operation of "ES" equipment which has been in service for years— compare it, point for point with good engineering practice— insist on maintenance records. "ES" will help you get these facts, confident that when your study shall have been completed, your specifications will read "ES or equal".

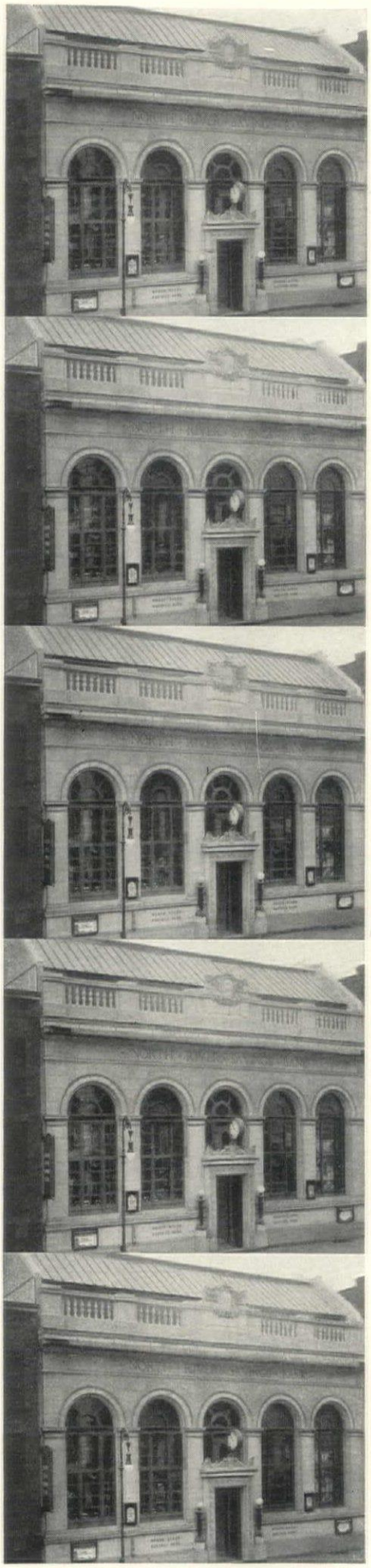
ELEVATOR SUPPLIES COMPANY, Inc.

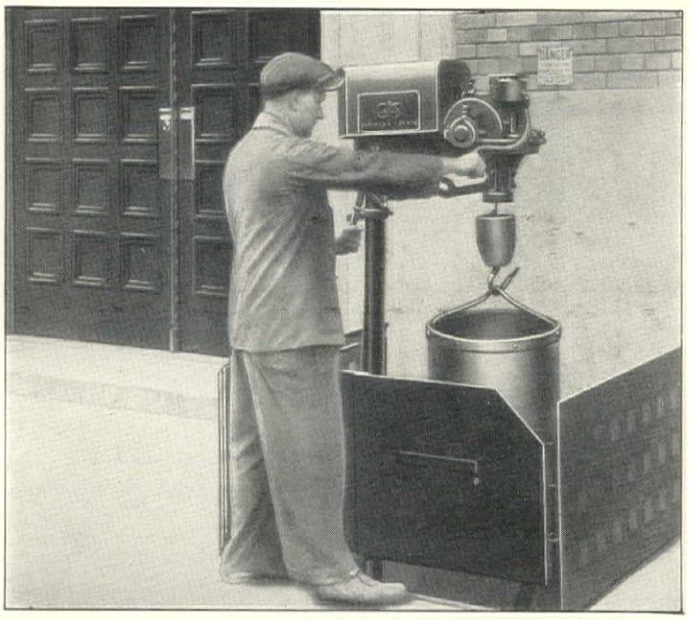
MAIN OFFICE AND WORKS

HOBOKEN, N. J.

BOSTON CHICAGO CINCINNATI CLEVELAND DETROIT LOS ANGELES DALLAS PITTSBURGH PHILADELPHIA SAN FRANCISCO

Canadian Representative: Canadian Elevator Equipment Co., Ltd., Toronto, Ontario, Canada





Model E Electric Hoist as used in bank buildings.
Note how sidewalk opening is fully protected

619 BANKS

now remove ASHES, GARBAGE, RUBBISH with G&G TELESCOPIC HOISTS

BANK architects and bank officials have selected the G&G Telescopic Hoists time after time because a necessary work is accomplished with the least possible expenditure of time, labor and money. The positive safety assured by this equipment has also influenced its selection. Accidents cannot happen when the sidewalk opening is fully enclosed and safeguarded by G&G Sidewalk Doors and Swing Guard Gate.

Banks are just one of many classes of buildings in which G&G Telescopic Hoists are used for removing ashes, garbage and rubbish. The list includes hotels, hospitals, clubs, office buildings, schools, churches, garages, etc.

Our engineers will be glad to cooperate in the selection of the hoist equipment best adapted to a specific purpose. Electric and hand operated models available for all needs.

the G&G ELECTRIC REG. U.S. PAT. OFF.
Telescopic Hoist
With Automatic Stop and Gravity Lowering Device

See our Catalog in Sweet's Archt'l Catalog—1931 Ed., pp D6342-49
In Canada see Specification Data. Agents in Principal Cities

GILLIS & GEOGHEGAN

544 West Broadway — New York, N. Y.

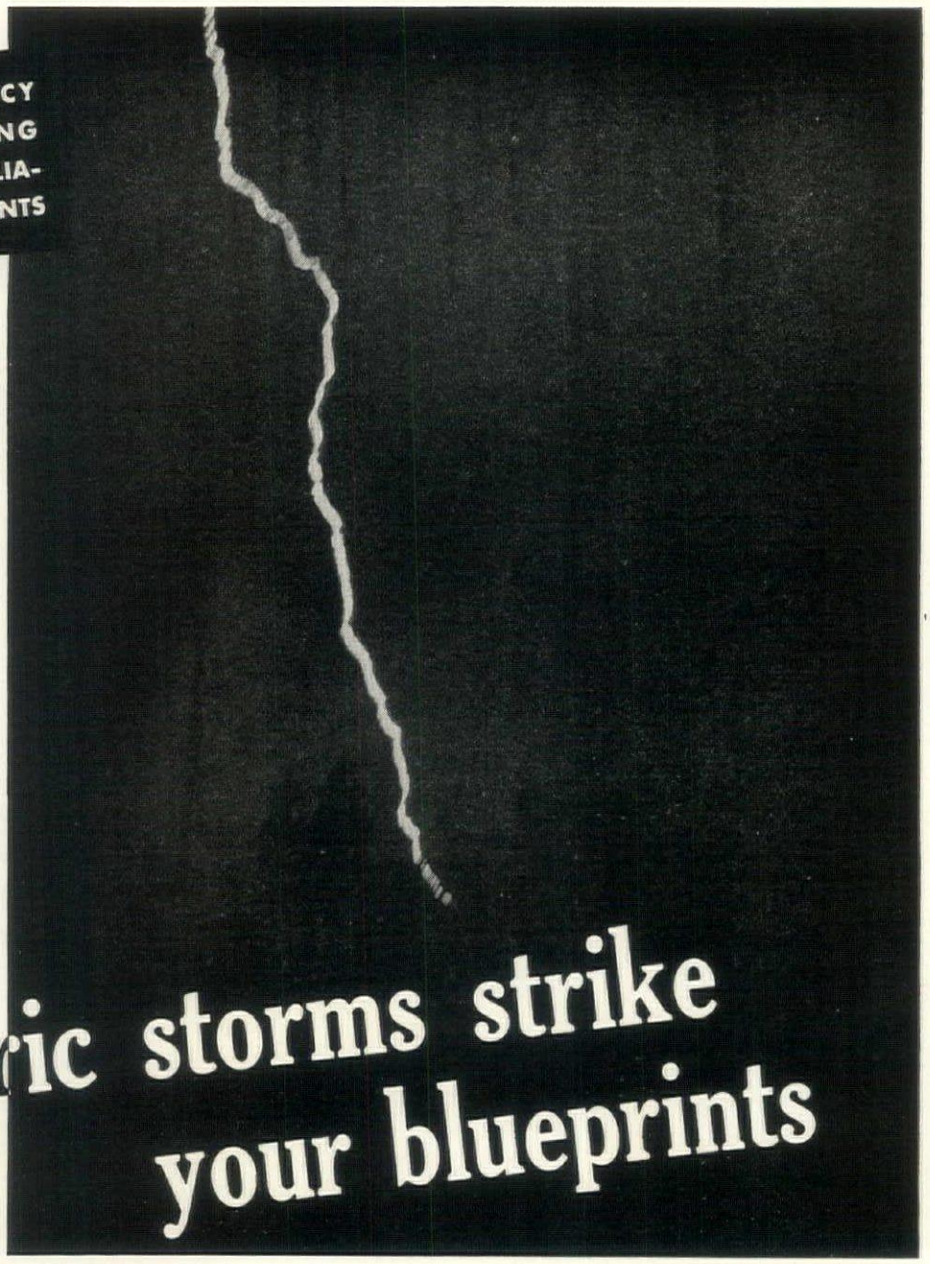
Materials must aid the builder

Who, but a man born to the age of steel, could imagine the lofty, shimmering city towers of today? Only steel could have so stirred men's visions. Only steel could have made those visions come true. Now, steel offers a new advantage to the builders of the Central West—C. B. Sections rolled in Chicago.

Illinois Steel Company
SUBSIDIARY OF UNITED STATES STEEL CORPORATION
208 South La Salle Street, Chicago, Ill.

C. B. SECTIONS

INCLUDE EXIDE EMERGENCY LIGHTING IN ALL BUILDING PLANS AND GUARANTEE RELIABLE CURRENT TO YOUR CLIENTS



Thunder, lightning, driving rain. Poles down. Power lines snapped. Such a storm can cut off electric current in buildings you plan. Why take this chance? Guard against it. Include an Exide Emergency Lighting Battery System in every building you plan.

DON'T let electric storms strike your blueprints

FAR away from a building of yours, lightning strikes. Poles crash. Power lines come down. That building is suddenly plunged into darkness. Blueprints and specifications for it didn't provide for protection against current failure.

Think of the possible confusion, inconvenience and danger of sudden electric current failure in such places as hospitals, theatres, schools, auditoriums . . . wherever crowds may gather.

Current failure seldom happens, but *once* may be too often. Power companies work night and day to give dependable service, but they can't prevent interruptions like this any more than you. You can guard against them by including Exide Emergency Lighting Battery Systems in every building you plan. More and more architects all over the United States are realizing the advantages of Exides and are specifying them.

Should power suddenly fail, Exides *instantly* and *automatically* take over the entire emergency load . . . without a hand touching a switch. Occupants of buildings you plan are not aware of current failure—lights keep burning.

Exide Emergency Lighting Battery Systems are not expensive. Have one of our technical men call and discuss emergency lighting with you. Or, write for our Emergency Lighting Bulletin. See pages D 5810-11 in Sweet's Catalog.

Exide

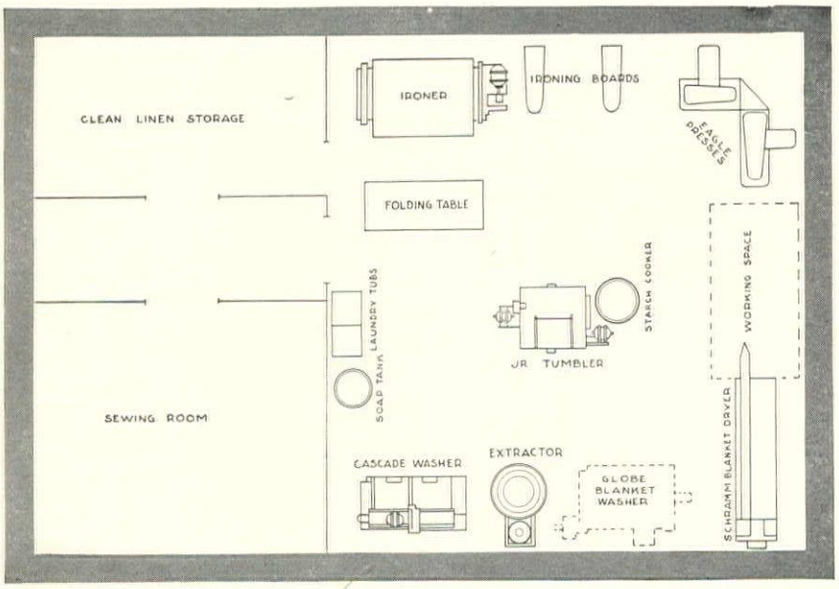
EMERGENCY LIGHTING BATTERY SYSTEMS

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

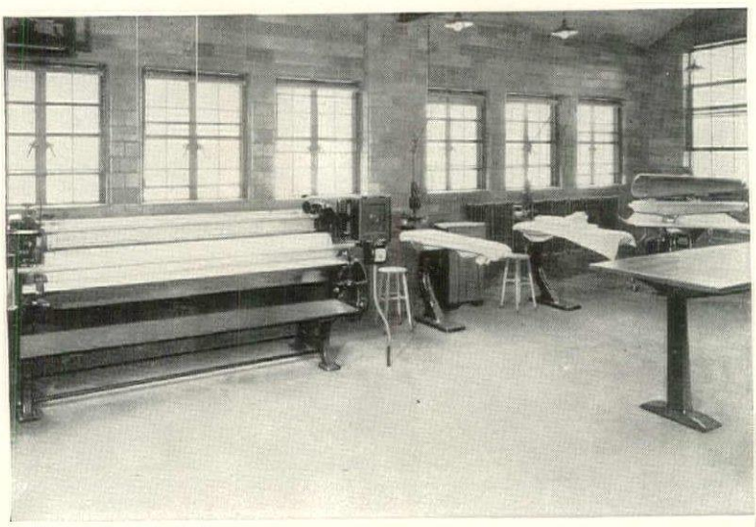
THE WORLD'S LARGEST MANUFACTURERS OF STORAGE BATTERIES FOR EVERY PURPOSE

Exide Batteries of Canada, Limited, Toronto

Here you see the efficient placing of the Cascade Washer, Underdriven Extractor, Junior Drying Tumbler, Eagle Presses, return-apron Flat Work Ironer and other miscellaneous "American" equipment in Duns Scotus' modern laundry.



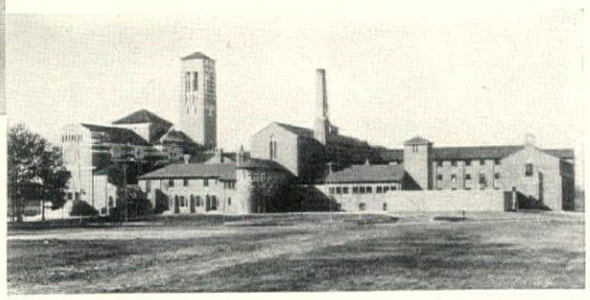
Do Your Specifications Call for *a laundry like this?*



Duns Scotus College, Detroit, with a view of its modern laundry department, planned with the collaboration of the "American" Specialist in school laundries.

—W. D. Anthony, Architect, New York City.

This is the indispensable laundry at Duns Scotus College, Detroit. It operates smoothly, efficiently, noiselessly. In planning it, W. D. Anthony, the architect, logically drew on the knowledge of a "technician," outside of his own organization, The American Laundry Machinery Company's Specialist in school-laundry layout and practise.



YOU may be planning a modest school-laundry installation . . . redesigning the laundry department in a hospital, office structure, club or apartment building . . . anticipating the laundry requirements of a huge, new hotel. If so, you can save hours of your time and dollars of your client's money by asking the "American" Specialist to pay you a visit. He can furnish detailed plans—help you work out floor dimensions—estimate mechanical requirements—investigate sources of water and power. And he will welcome an opportunity to work with you at any time, without obligating you in any way.

THE AMERICAN LAUNDRY MACHINERY COMPANY

CINCINNATI, OHIO

NO ARCHITECT is sold by *Superlative Statements*

He will judge a new material for himself

WE do not believe that superlative statements, even though true, will sell you Bi-Flax and gain your acceptance of this new material—the only one of its kind. We believe that, as one who has the responsibility of specifying materials, you will study Bi-Flax and judge its value for yourself.

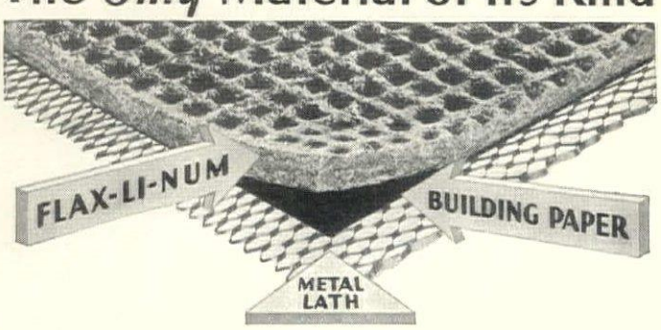
We can tell you that Bi-Flax, combining Flax-li-num with metal lath, has the highest insulation value of any insulating plaster base material — That Bi-Flax provides a positive mechanical plaster key.

Undoubtedly, you are interested in these and other outstanding features of this new material. We feel, however, that Bi-Flax, to gain your approval and acceptance, must depend entirely on your personal examination of the material itself.

The attached coupon is for your convenience. It will bring you a sample of Bi-Flax, that you may examine this new building material, the only one of its kind.

BI-FLAX

The *Only* Material of Its Kind



Please give individual name as well as name of firm that samples may be mailed to your personal attention.

FLAX-LI-NUM INSULATING COMPANY, ST. PAUL, MINNESOTA

Please send for my inspection a sample of BI-FLAX. Dept. AF3

NAME_____

FIRM NAME_____

ADDRESS_____

"This gown is soiled, . . . *you must take it back*"

Foresight in Store Planning Will Save Many Merchandise Returns

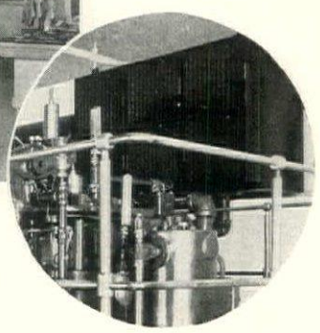
Half a dozen women are lined up at the adjustment window. Coats and dresses are being returned; gloves and stockings. On one was discovered an ugly smudge left by a single speck of soot. On another, a dingy scar made by a film of dust. Sales are cancelled. The merchandise has lost its value. Customer good will has suffered.

Merchants who are putting up new stores today demand buildings that will check these and other leaks in profits. The architect who meets these demands is as careful to specify air filtration as to provide adequate heating, plumbing and lighting.

With American Air Filters, Titche-Goettinger Co., of Dallas, Texas, protects valuable merchandise and insures the comfort of employees and customers. Other prominent retail store users include Macy's; Wanamaker's; Gimbel's; Hudson's; Carson, Pirie & Scott; Filene's; Strawbridge & Clothier; Jos. Horne Co.; Lord & Taylor.

In specifying *American Air Filters,* architects fulfill their two-fold responsibility to owners and users of buildings. They insure an abundant supply of air, thoroughly cleansed of dust, dirt and bacteria. The healthful, invigorating atmosphere contributes to employee health and efficiency. Customers shop without fatigue. Upkeep, cleaning and redecoration costs are cut. Valuable equipment and merchandise are protected.

Our staff of research workers is at your disposal, without obligation. Let us help you determine what types are best suited to your clients' needs. Let us help you plan systems of air filtration that will solve special problems and serve unusually exacting purposes. American Air Filter Co., *Incorporated,* General Offices, 132 Central Avenue, Louisville, Ky. Factories, Louisville, Ky. and Bradford, Pa.

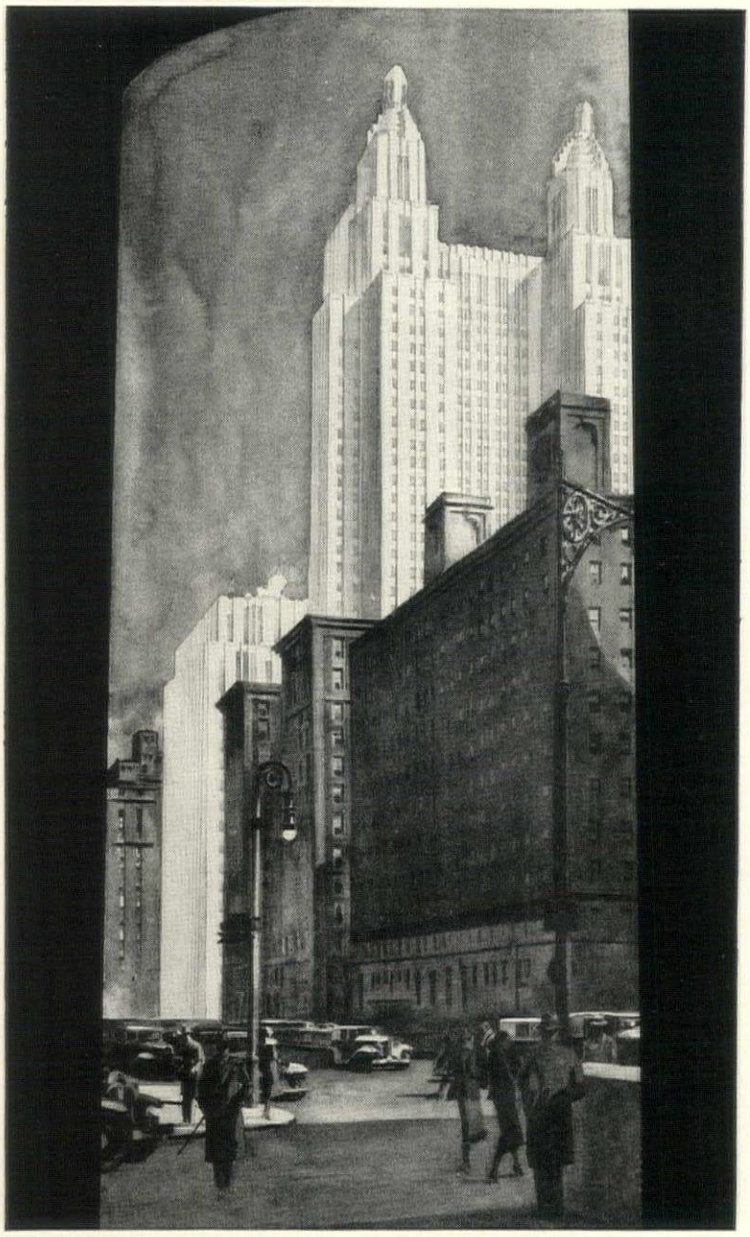


American Air Filters are made by the world's largest manufacturers of air-cleaning equipment. A wide variety of types, adaptable to any kind of building. Invaribly reliable and efficient.

AMERICAN AIR FILTERS

CLEAN AIR: THE NEW ARCHITECTURAL RESPONSIBILITY

● *Thompson-Starrett Company, Inc., Builders; Schultze & Weaver, Architects*



Citadel of the gracious art of modern living

THE NEW

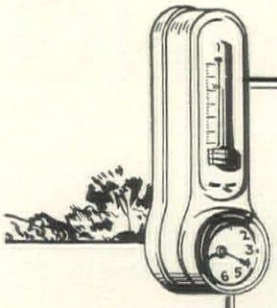
WALDORF ASTORIA

Few, indeed, were the hotels throughout the world, whose reputations for excelling in the gracious art of living could compare with that of the former Waldorf-Astoria. Today a new Waldorf-Astoria rises majestically above the throbbing pulse of Park Avenue . . . twin towers of gray, whose chaste simplicity reflect harmoniously the vibrant spirit of our times. In design, construction and appointments only one standard was considered — the best. ● Frigidaire has been chosen, not only by the Waldorf-Astoria, but also by hundreds of other leading hotels and apartments throughout the world, where quality, beauty and quiet operation are the sole deciding factors. ● This same, new, quiet Frigidaire—with its cabinet of sparkling white Porcelain-on-steel and features that contribute the utmost in convenience, economy, healthfulness and permanent satisfaction—offers a new standard of advanced refrigeration for any home or apartment. If you apply the same high standards of excellence as the Waldorf-Astoria, and other world famous hostelries . . . for you, too, there can be but one choice — Frigidaire. Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

Frigidaire

Advanced *Refrigeration*

THE NEW ALL WHITE PORCELAIN-ON-STEEL FRIGIDAIRES ARE SOLD WITH A THREE-YEAR COMPLETE GUARANTEE



Any type of control works better with the IMPROVED Type "R" System

With oil and gas fuels gaining in popularity ordinary heating systems develop "complications". Instead of a steady flame varying slowly in intensity the newer fuels produce an intermittent burning—off a few minutes and then on full blast.

In *unbalanced* systems this means cold radiators, then hot radiators, particularly where the burner is controlled by a thermostat in a so-called "key" room. It means underheating in some rooms and overheating in others, depending on how well the thermostat has been located.

With the same situation and an IMPROVED Type "R" System, practically any room in the house is a "key" room because *all radiators in the house receive steam at the same time and in proportion to the need for steam.* Room temperatures are surprisingly even, regardless of their distance from the source of heat, and maintain that uniformity in spite of fluctuating pressures at the boiler.

This remarkable improvement in heating service is accomplished by incorporating in the well-known Webster Type "R" System a series of specially selected metering orifices at the entrance to every radiator . . . restricting the flow of steam in varying degrees so that the "pressure drop" is *equalized* and *balanced* throughout the entire system. The results . . . Quick heating-up, more even room temperatures, better control with the newer fuels, the newer types of light weight radiation and the new regulating devices. Better performance too, with the older fuels and cast iron radiation.

For This Improved Service

All that is necessary to assure your clients of the marked advances in heating comfort and economy afforded by Improved Webster Type "R" Systems is to incorporate three short paragraphs in your present standard Webster specifications. Bulletin containing these paragraphs will be sent upon request, together with complete information. The coupon below is for your convenience.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada
a R 27A

-since 1888
Webster
Systems of Steam Heating

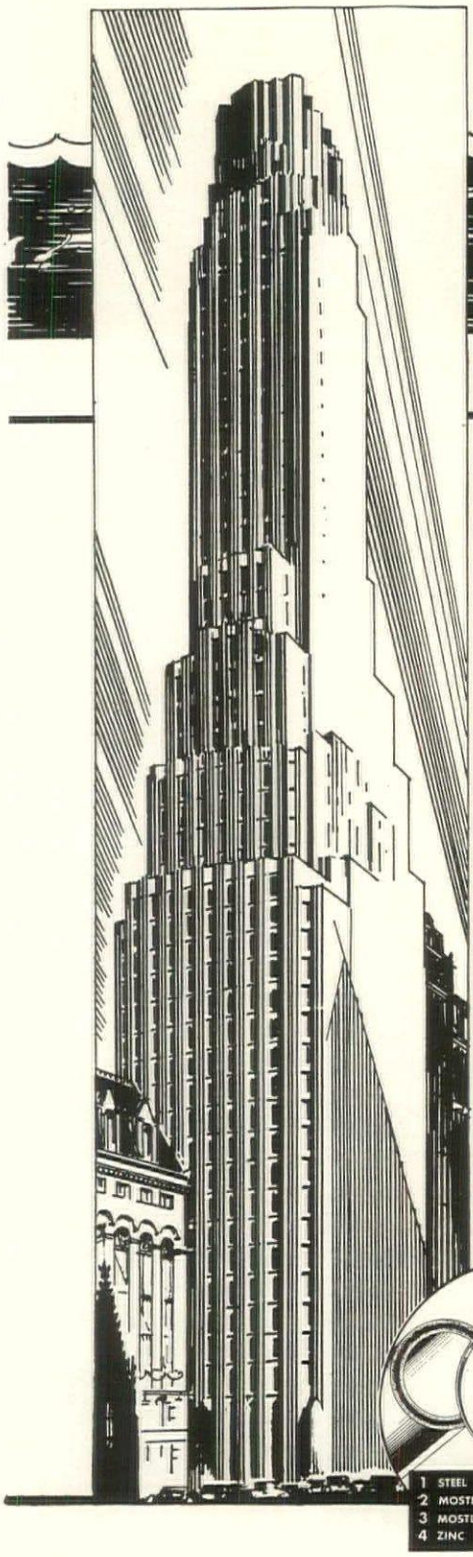
WARREN WEBSTER & COMPANY, Camden, New Jersey:

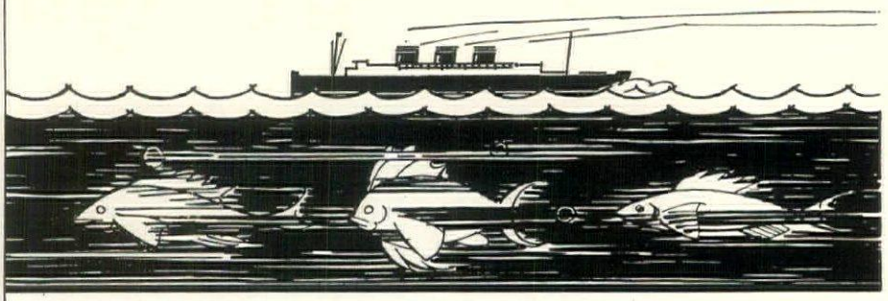
Please send me your Bulletin describing the Improved Webster Type "R" System including suggested specification paragraphs.

Name.....*Address*.....*City*.....

A. F. 5-31

PROTECTING WIRING





BELOW SEA LEVEL AND HIGH IN THE AIR

AT the financial heart of the world rises Number One Wall Street . . . fifty stately stories . . . the newest monument to America's financial and business leadership.

Deep, deep down, below the level of the sea, are the vaults that guard fabulous treasure . . . surrounded by an elaborate system of electrical and mechanical defenses.

And towering high in the air are the business homes of international figures in commerce and finance.

Both must have unfaltering electrical service . . . a dependability assured for a generation or more. So throughout this great building G-E Rigid Conduit protects the wiring . . . a deserved tribute to the everlasting satisfaction that goes with the G-E Monogram.—"*The Initials of a Friend.*"

G-E "White," the original hot dipped galvanized rigid conduit, as well as G-E "Black," baked enamel, and G-E Boxes and Fittings are quickly available in every part of the country through G-E Merchandise Distributors.

One Wall Street, New York

The Irving Trust Company's Headquarters and Office Building

Architect: Gmelin & Walker
Builder: Marc Eidlitz & Sons, Inc.
Electrical Contractor: J. Livingston & Co.
Consulting Electrical Engineer: Meyer, Strong & Jones, Inc.

GENERAL ELECTRIC

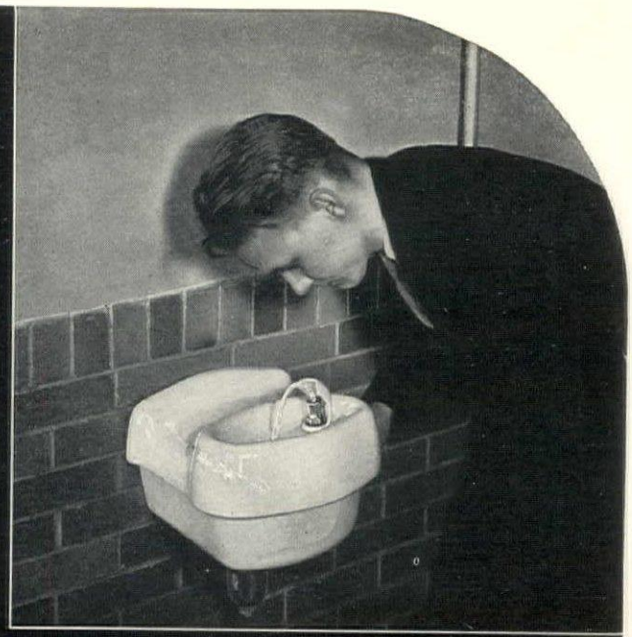
RIGID CONDUIT

MERCHANDISE DEPARTMENT • GENERAL ELECTRIC COMPANY • BRIDGEPORT, CONNECTICUT

NOW . . .

A NEW STANDARD OF PERFORMANCE FOR YEARS TO COME

Refrigeration PLUS!



SERVEL'S new machine units meet the most exacting demands for commercial refrigeration—set a new standard of performance for years to come.

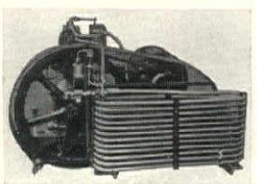
These 16 advanced models have been built to endure; to stand up under thousands of hours of operation without appreciable wear.

They are designed expressly for apartment refrigeration and important water-cooling jobs—sturdier, heavier—out of wear-resisting materials, with fool-proof automatic controls.

Servel offers a refrigerating unit for every capacity requirement. No need to overload machines that are too small for the job! No need to waste capacity with machines that are too large! Instead, the proper unit for every task!

In spite of all its advancements, Servel costs no more than ordinary refrigeration. It can be installed quickly and economically in existing buildings, or made a part of the plans for new buildings.

QUICK FACTS



NEW-STYLE CONDENSERS: *interchangeable; highly efficient* . . . MULTIPLE VEE-BELT DRIVES: *insuring uninterrupted service and quiet operation* . . . SIMPLIFIED CONTROLS: *fully automatic; no attendant necessary* . . . ECONOMICAL OPERATION: *low-speed compressors; greater refrigeration for current used* . . . WIDE RANGE OF 16 MODELS: *with capacities of 130 to 1510 lbs. ice equivalent per day.*

SERVEL

COMMERCIAL REFRIGERATION

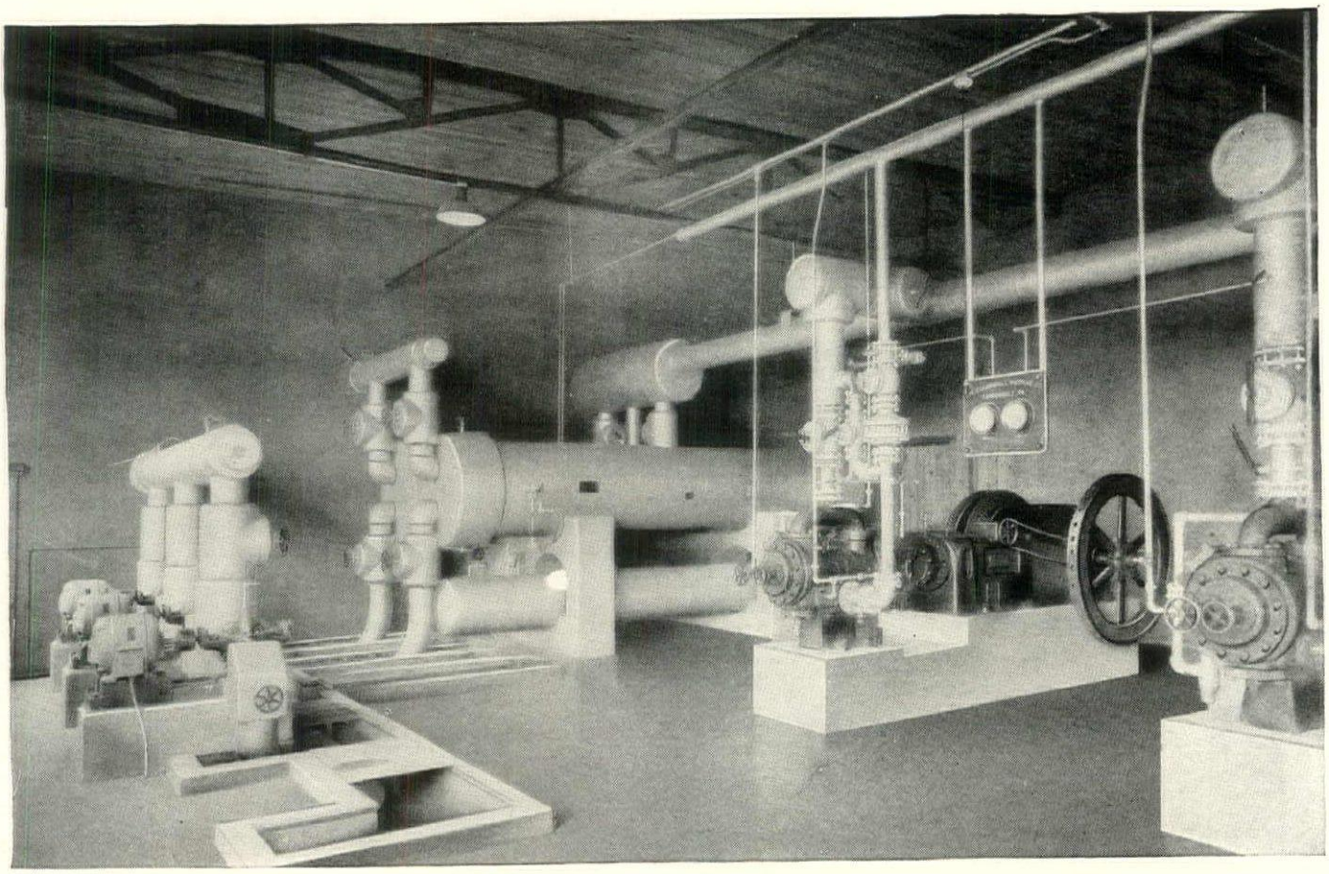
SERVEL SALES, Inc., Dept. B-2, Evansville, Ind.

Gentlemen: Please send me complete information about SERVEL *Refrigeration* PLUS.

NAME .....

ADDRESS .....

CITY ..... STATE .....



Engineered Refrigeration
to meet any specific need!

HELPING to convert a surplus into a saleable product is the function of Carbondale Refrigeration at the Fruit Industries, Inc., Delano, Cal. The grape supply, over and above the market demand is made into grape concentrate.

The fact that this Carbondale Refrigerating System is serving so well reflects to the credit not only of Carbondale Machines, but of Carbondale Engineering. Properly engineered refrigeration has typified Carbondale installations over a long period of years in every branch of industry and business.

Whether it be for the manufacture of raw water ice . . . air conditioning . . . food preservation or a manufacturing process, Carbondale has the Refrigerating System precisely suited to the need. The experience gained during 40 years of pioneering is at your service.

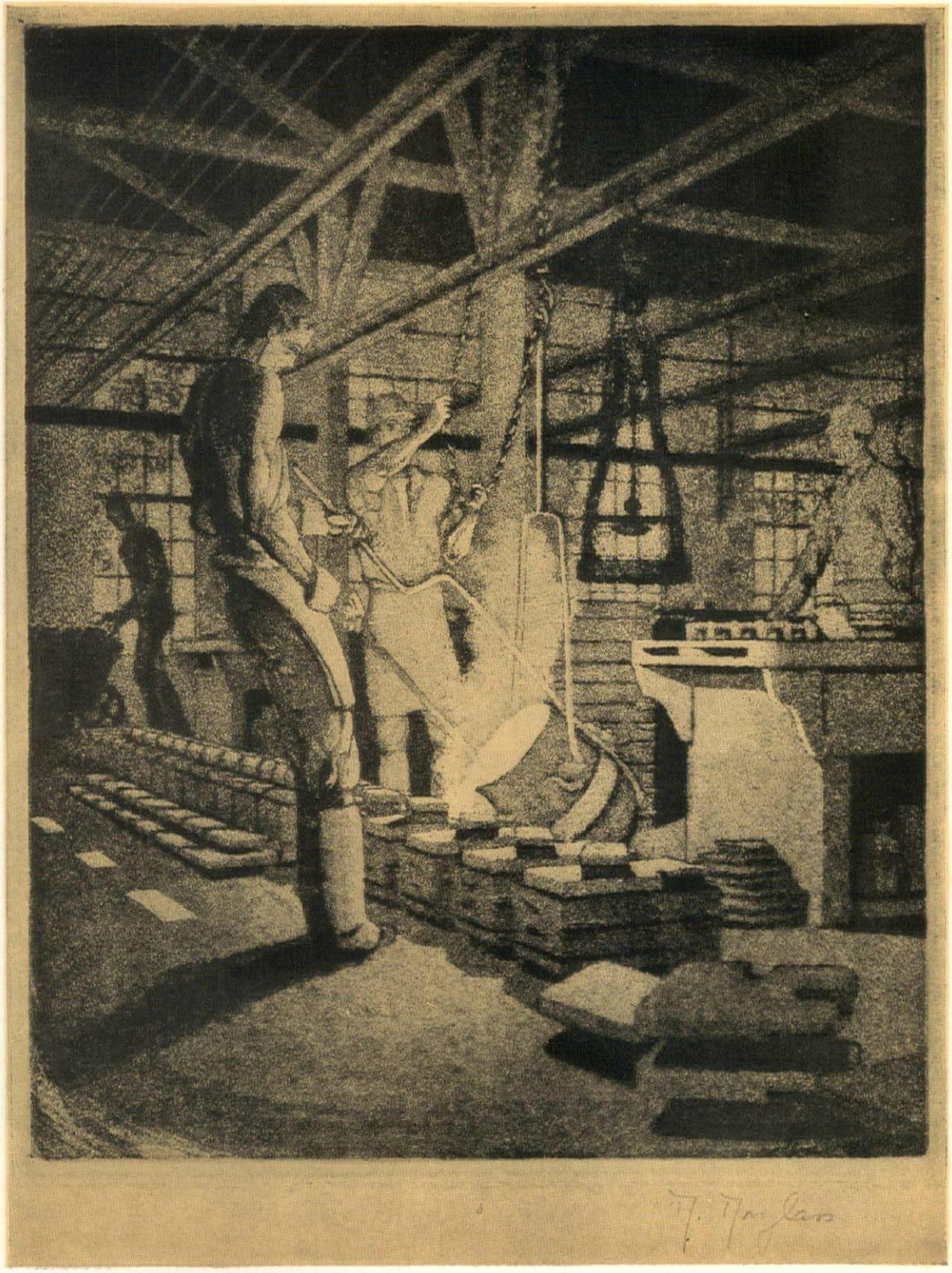
•

THE CARBONDALE MACHINE CO.
Carbondale, Pa. *Branches in principal cities*

Carbondale Refrigeration

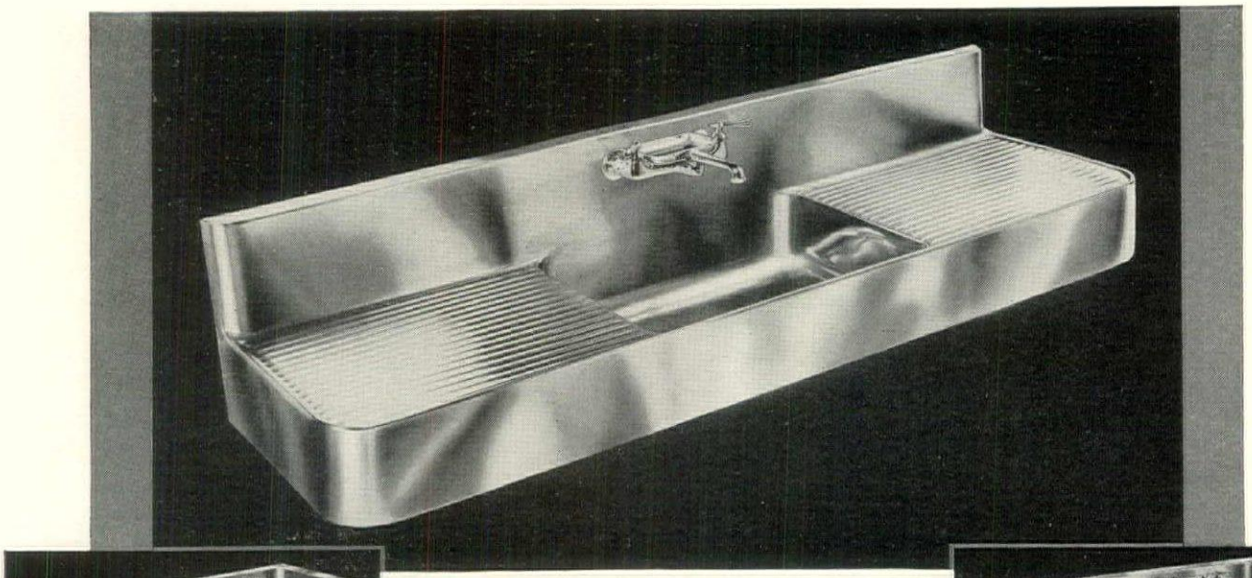
ABSORPTION AND COMPRESSION AMMONIA CARMACO SYSTEMS AND CO_2 COMPRESSION SYSTEMS

CARBONDALE AMMONIA COMPRESSION REFRIGERATING SYSTEMS USE WORTHINGTON "FEATHER VALVE" COMPRESSORS



POURING BRONZE . . . FOR FLAWLESS CASTINGS

Scientific foundry practice bulwarks Jenkins Valves against the blows of hard service. Metal is poured at the proper temperature to assure castings free from imperfections . . . Jenkins Valves are manufactured throughout to provide long-term performance characterized by definitely low upkeep . . . Jenkins Bros., 80 White Street, New York; 524 Atlantic Avenue, Boston; 133 North 7th Street, Philadelphia; 646 Washington Boulevard, Chicago; 1121 North San Jacinto, Houston, Texas; Jenkins Bros., Ltd., Montreal, London.



Double drain board Monel Metal sink. Made in nominal sizes of 72" and 60".

Monel Metal corner sink. Corner splasher at bowl end, drain boards either right- or left-hand. Supplied in nominal sizes of 51" and 42".

Single drain board Monel Metal sink. Available in both left- and right-hand drain board models. Made in nominal sizes of 50" and 41".

NOW... for the first time

standardized MONEL METAL *kitchen* SINKS!

How often you have wished that someone would make a standardized Monel Metal kitchen sink—a sink that embodied the beauty and durability that only Monel Metal construction provides... at less than custom-built cost.

Your wish has become a reality! You may now specify standardized Monel Metal sinks for the homes you are planning. All the silvery beauty of Monel Metal... all the cleanliness and durability that have made this modern Nickel alloy so popular for institutional equipment... is now available in sinks at prices the average home can afford.

Created by Gustav Jensen... smart and modern with the mellow lustre of sterling... the new Monel Metal sinks represent the ultimate in sink design and utility. Their rich beauty blends with every color scheme. Their satin-smooth, corrosion-resisting surface can be kept spick and span with simplest cleaning care. They are rust-proof and chip-proof. Their steel-like strength and rigid construction give them lifetime durability...The new Monel Metal sinks are ready for your inspection at leading plumbing supply houses. See them today—and discover how kitchens can be transformed and modernized with new, modern Monel Metal sinks. Also write for booklet giving descriptions and specification details.

new beauty...one-piece construction...more working surface... designed by Gustav Jensen

8 Points of Superiority

1. Rich, lustrous beauty with a satiny, glass-smooth surface.
2. Rust-proof... highly resistant to corrosion... easy to clean and keep clean.
3. Solid metal clear through, with no coating to chip, crack or wear off. Steel-like strength gives lifetime durability.
4. Neutral, silver tone blends with any kitchen color scheme. Gives new freedom to kitchen decoration.
5. 10 standardized models and 6 standardized sizes. A model and size for any type of kitchen.
6. 31% more working space than an ordinary sink of same nominal size.
7. One-piece construction of heavy gauge Monel Metal. No joints or seams. Reinforced and sound-deadened.
8. Standardized construction and quantity production bring prices within reach of the average purse.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N. Y.

A HIGH NICKEL ALLOY

MONEL METAL

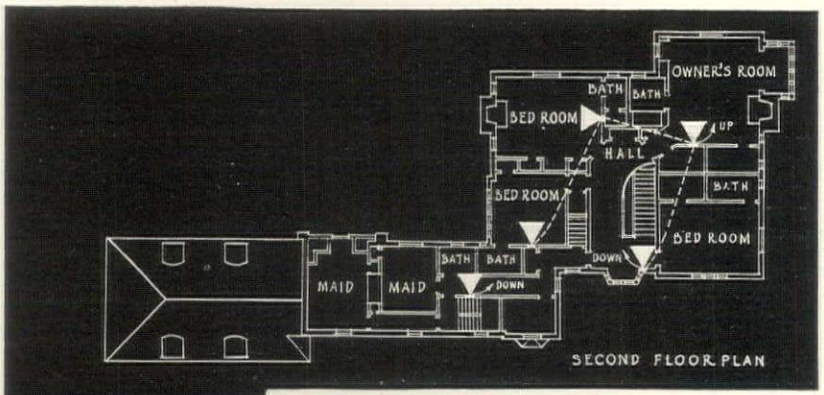
MODERN AS TOMORROW

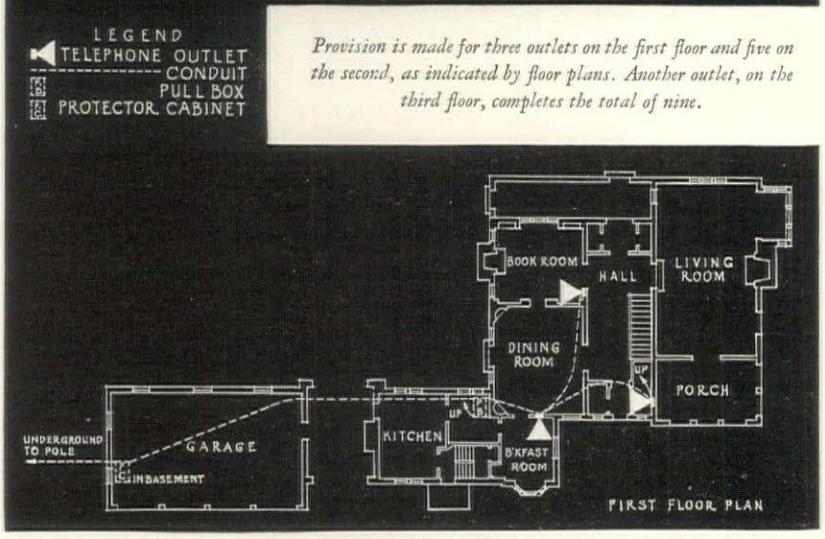
INCO MONEL METAL

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Built-in conduit and nine outlets provide for telephone convenience in the residence of Mr. Wilbert J. Austin, Sherbrooke Road, Shaker Heights, Cleveland, Ohio. MAIER & WALSH, Architects, *Cleveland*

THE OWNERS OF THE HOMES YOU PLAN WILL WELCOME THIS CONVENIENCE





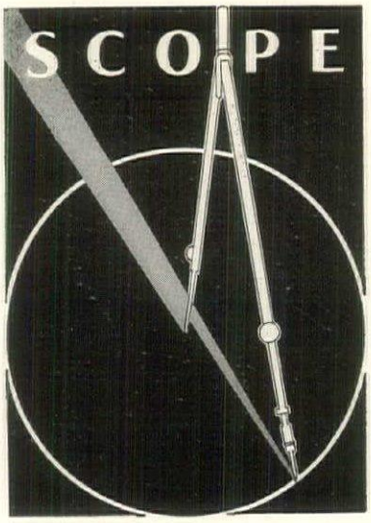
LEGEND
TELEPHONE OUTLET
CONDUIT
PULL BOX
PROTECTOR CABINET

Provision is made for three outlets on the first floor and five on the second, as indicated by floor plans. Another outlet, on the third floor, completes the total of nine.

CLIENTS are pleased with the home that's attractive *outside*. And doubly pleased as the years prove that home livable *inside*. Every added comfort is important to them —and to you. None more so than the matter of adequate telephone arrangements.

Telephones conveniently located in all the important rooms of the house save time and steps and energy for every member of the household every day. You can assure this convenience by providing for telephone conduit in walls and floors. The conduit permits outlets and instruments wherever they are needed, conceals all wiring and protects against certain types of service interruptions.

In planning the telephone arrangements for new or remodeled residences, take advantage of the free advisory service available from your local telephone company. They have wide and varied experience to offer you in the matter of providing for many types of equipment. Just call the Business Office.



ENGINEERING SERVICE..on *Sanitary Specialties*

THE years Josam representatives have contacted architects, engineers and building contractors have resulted in a mutual appreciation of the function of each in the design, production and application of sanitary specialties.

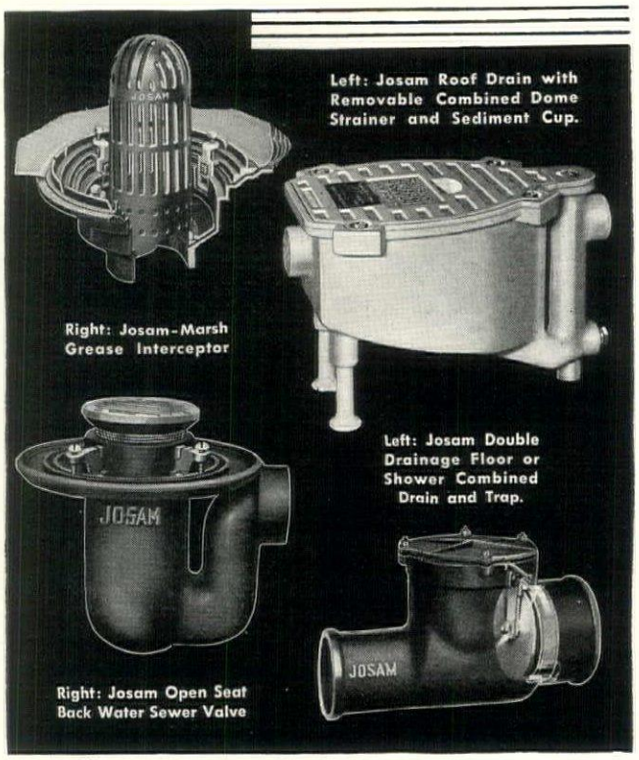
These contacts have centered primarily around the standard applications of Josam products. Our observations from these contacts have shown the almost unlimited possibilities of these cataloged items when our engineering staff has been called upon for special applications to meet unusual conditions.

These opportunities to give of our specialized knowledge of sanitary engineering have resulted in new applications of floor and roof drains and the associated products. This fund of knowledge is yours, available for each unusual problem along this line with which you are confronted.

The broad scope of this service in conjunction with the detailed information in catalog G will prove extremely helpful in all work of this kind.

JOSAM MANUFACTURING COMPANY
4907 Euclid Building · · Cleveland, Ohio
FACTORY: MICHIGAN CITY, INDIANA.
BRANCHES IN ALL PRINCIPAL CITIES.

JOSAM PRODUCTS ARE SOLD BY ALL PLUMBING & HEATING SUPPLY JOBBERS



Josam TRADE MARK REG. PRODUCTS

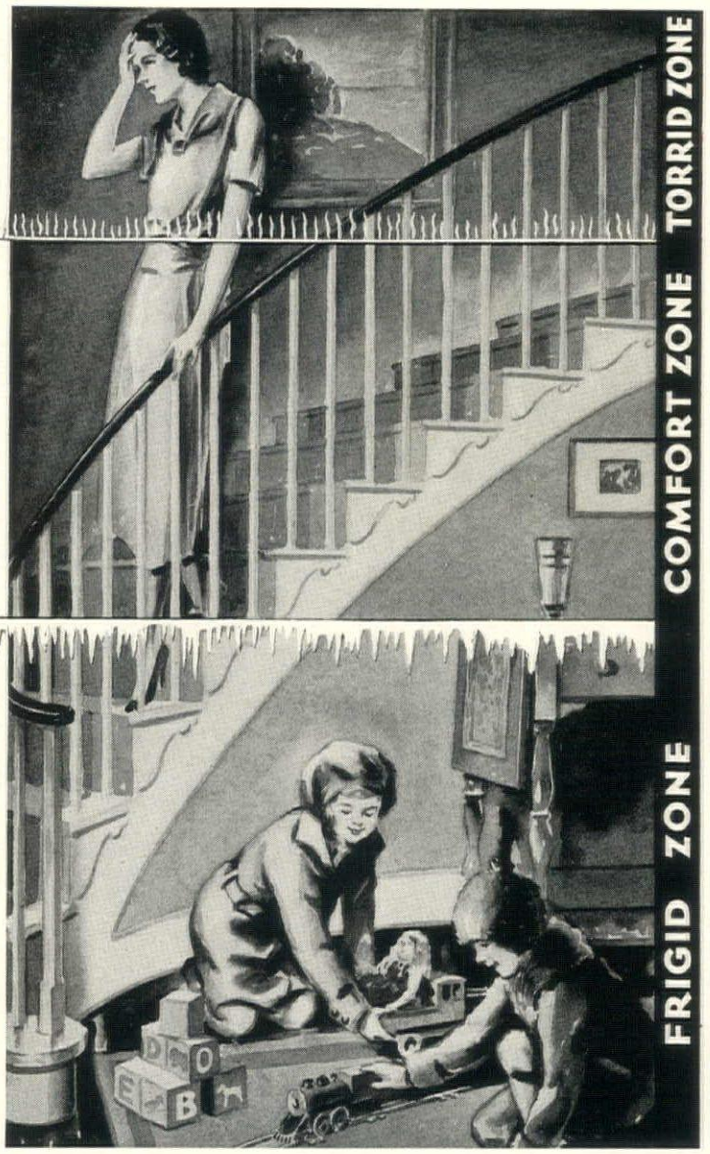
SEE OUR Catalogue in SWEETS

We will welcome inquiries regarding the use and installation of the Josam Products listed below from Catalog G: Josam Drains for Floors, Roofs, Showers, Urinals, Garages and Hospitals; Josam Swimming Pool Equipment, Josam-Marsh Grease, Plaster, Dental and Surgical, Sediment and Hair Interceptors; Josam-Marsh Shock Absorbers for Pipe Lines; Josam Open Seat Back Water Sewer Valves; Josam Open Seat Swing Check Valves; Josam Adjustable Closet Outlet Connections and Bends, Water and Gas-Tight.

THERE ARE NO SUBSTITUTES FOR JOSAM PRODUCTS

Hot as an oven

Cold as a barn



HOT at the ceiling—cold at the floor—smothering one moment—freezing the next—the uninsulated home is hard to heat, wastes fuel and is seldom comfortable. It's all because heat escapes too quickly through the uninsulated roof, and outside cold penetrates the unprotected walls, setting up a condition of ever changing temperatures, and cold drafts. It's an unhealthy condition to live in, to say nothing of the unhealthy effect it has upon the pocketbook. But it is a condition that is easily remedied.

GIMCO ROCK WOOL *the* FIRE-PROOF

VERMIN-PROOF, ROT-PROOF INSULATOR *that completely fills the walls!*

GIMCO ROCK Wool is the light, fluffy, woolly insulator that is packed, poured or blown into the walls and over the ceiling of the home. It fills the walls completely, stopping every corner, crack or crevice through which heat can pass, giving a full three-and-five-eighths-inch blanket of protection against winter cold and summer heat.

It is made entirely of rock, will not burn, settle, sift out, decay or disintegrate. Rats, mice or insects cannot live in it nor bother it in any way. It is easily and quickly applied to new or old homes, without muss or bother, and quickly pays for itself in fuel saved.

Let the GIMCO Insulating Contractor in your city demonstrate its remarkable comfort-bringing, money-saving qualities. Mail the coupon below for his name and address, and our free booklet, *"Keeping Winter Heat In and Summer Heat Out."*

GENERAL INSULATING & MFG. CO.
FACTORY AND GENERAL OFFICES
ALEXANDRIA, INDIANA

3½ to 7 Times More Efficient, Because 3½ to 7 Times Thicker

The efficiency of an insulator is based upon the amount of heat-transfer through a square foot of it, one inch thick, per hour, per degree difference in temperature. The U. S. Bureau of Standards gives Rock Wool the highest efficiency rating of any fire-proof chemically stable insulator.

However, most commonly used insulators are considerably less than one inch thick, while GIMCO Rock Wool is applied to the full 3⅝-inch thickness of the wall, giving three and one-half to seven times greater efficiency, at no greater cost.

GENERAL INSULATING & MFG. CO.
Alexandria, Indiana.
Please send complete information regarding GIMCO Rock Wool House Insulation, and the name of the local dealer.
Name .....
Address .....

Von Duprin

Self-Releasing Fire and Panic Exit Latches

The Perfect Servant

Even though Von Duprin devices give you many years of trouble-free, expense-free operation . . . as they will . . . that is not the main purpose for which they have been fashioned with such painstaking care.

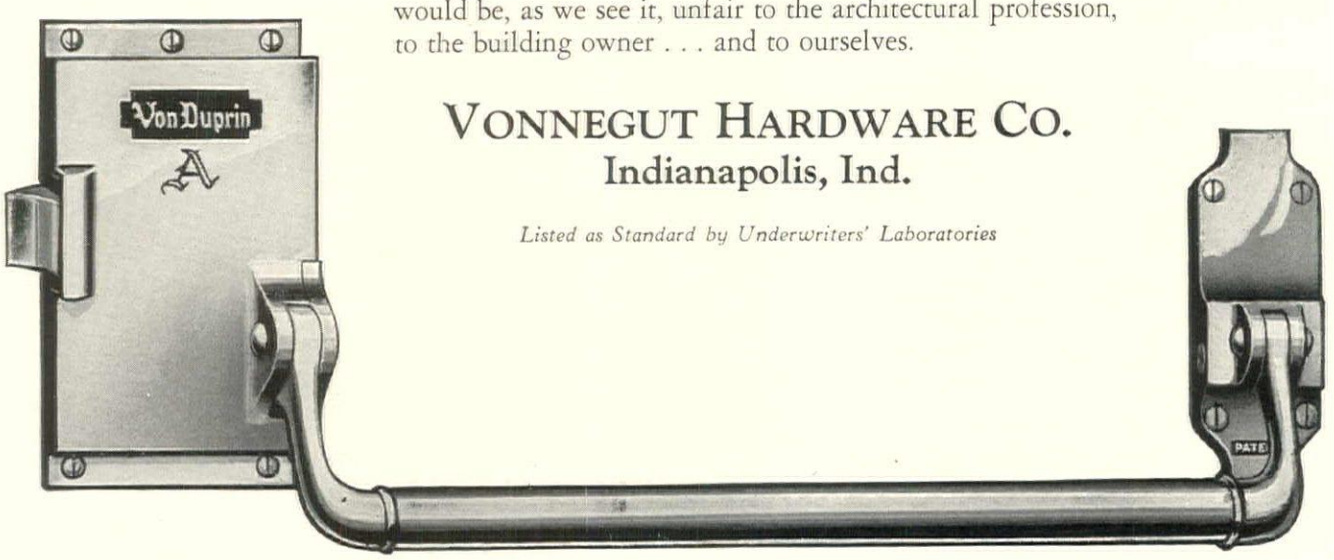
The main purpose of these devices is to wait . . . to be always ready for the emergency which is to put upon them the burden of saving lives, of making possible instant exit when it is vitally necessary.

It is for the hour of need . . . which may never come, or which may come tomorrow . . . that we build into each Von Duprin the best of all we have learned in twenty-three years of very hard work.

Sweets
Pages C3892-C3896

Devices built at less cost in time, in effort, in money, might do well enough for a reasonable amount of daily use . . . but would not, could not, be adequate to meet the terrific strain of emergency demands.

To build Von Duprin devices less well than we know how would be, as we see it, unfair to the architectural profession, to the building owner . . . and to ourselves.



VONNEGUT HARDWARE CO.
Indianapolis, Ind.

Listed as Standard by Underwriters' Laboratories

THE JUNE REFERENCE NUMBER

Wenzell

DESIGN

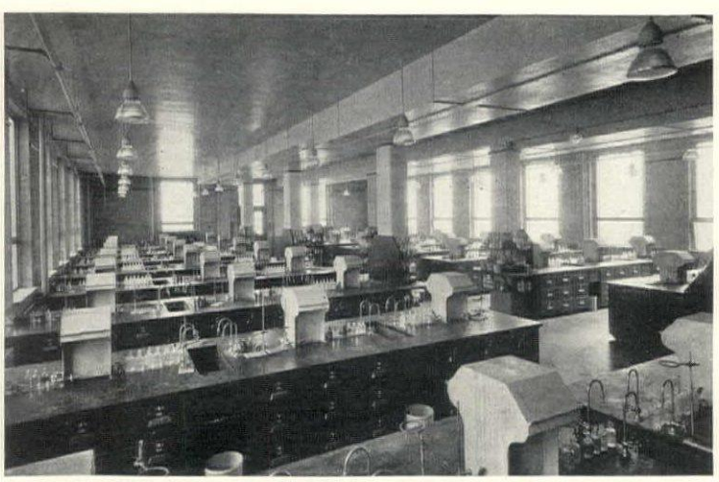
The PLATE SECTIONS will comprise 64 pages of university groups and college buildings, among them The Harvard Houses, published for the first time in a professional magazine. FREDERICK L. ACKERMAN will discuss The Planning of Collegiate Groups, and C. HOWARD WALKER writes of The Amenities of the Academic Style. All articles will be fully illustrated

UNIVERSITY AND COLLEGE BUILDINGS

In recent years college and university life has changed radically, and the new trend in educational methods has increased the complexity of college building requirements. The new problems that have arisen can be solved only through a broad conception of the conditions involved and by a thorough knowledge of the technical demands that they present. In the June Reference Number these trends are discussed; the problems are stated; and their practical solutions indicated. The material is concise, clear, and informative. It is attractively and thoroughly presented

ENGINEERING

The most recent technical developments in PLAN, STRUCTURE, and EQUIPMENT for all types of college buildings are set forth by such authorities as JOHN PARKINSON, JENS FREDERICK LARSON, IRVING K. POND. Each article will be illustrated with photographs, plans, working drawings, and practical data sheets



This advertisement is one of a series addressed to Architects and Institutional Executives.

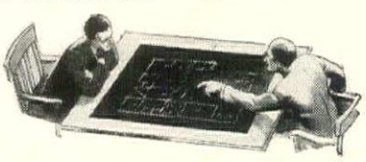
QUESTION:

What are the advantages of locating the institutional laundry in the basement?

ANSWER:

It is always desirable to locate the hotel or hospital laundry in that part of the building which has the least rental value or utility for other purposes. Except in infrequent instances where subway and underground entrances make floor space below ground valuable for shops, storerooms or receiving rooms, the basement location meets this requirement.

Construction problems must also be taken into account. Provision can be made for heavy floor loads of laundry equipment more economically in the basement than elsewhere. Suitable drainage can be provided at lower cost. Steam pipes and power lines are shorter. Less plumbing is required. The danger of damage to other floors from leakage is eliminated. Annoyance to guests and patients from the noise and vibration of machines is less likely when the institutional laundry is located in the basement.



From the standpoint of operation, too, this location has many advantages. Linens can be delivered through chutes avoiding accumulation on upper floors. Employees' entrances, locker and rest rooms can be provided at low rental charges. Moving-in of heavy machinery and supplies can be arranged for conveniently.

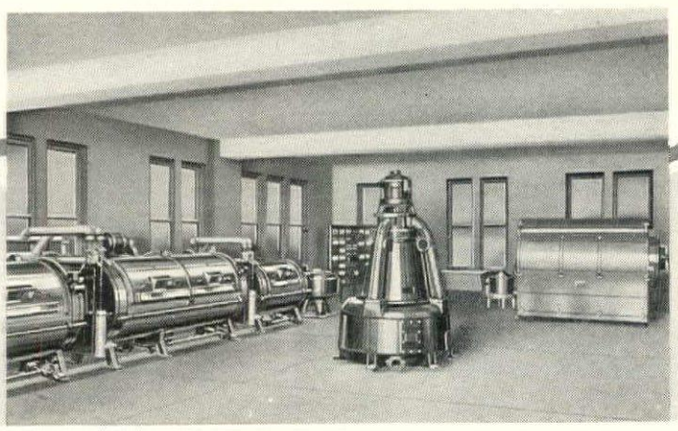
Troy Engineers, backed by Troy's fifty-two years' experience in equipping hospital, hotel and institutional laundry plants, are ready to answer your questions on laundry planning. Feel free at any time to enlist their cooperation.

TROY LAUNDRY MACHINERY CO., INC.

Chicago — New York — San Francisco — Seattle — Boston — Los Angeles. Factories: East Moline, Ill.

JAMES ARMSTRONG & CO., Ltd., European Agents: London — Berlin — Zurich.

TROY
LAUNDRY MACHINERY



SINCE 1879... THE WORLD'S PIONEER MANUFACTURER OF LAUNDRY MACHINERY

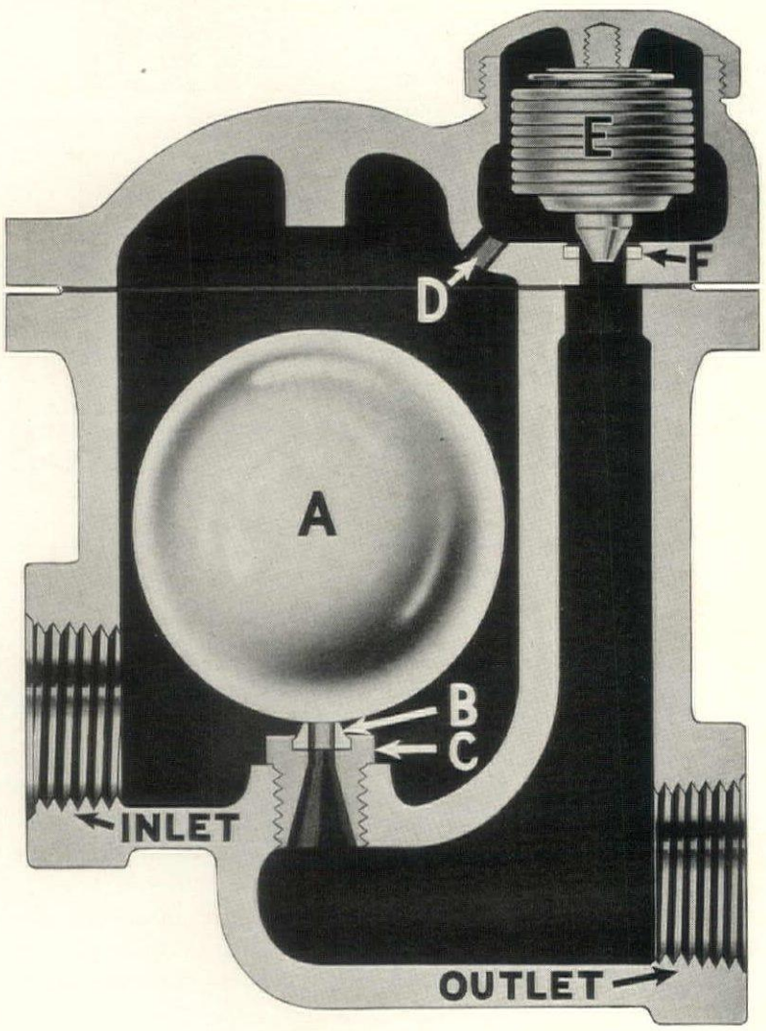
Troy-equipped laundry in St. Mary's Hospital, East St. Louis.

The CRYER VALVE Crier

of the D. G. C. TRAP & VALVE CO., Inc., 1 E. 43rd St., New York

Number 9 | New York, N. Y., MUrray Hill 2-7320 | *May, 1931*

Greatly Simplified Condensation Trap With Only Two Moving Parts Announced



Construction and Operation of New Trap

Steam, air and water enter the trap at the inlet. The ball A remains firmly seated on its stainless steel seat B (set in bronze bushing C) until the water level rises enough to float it off, whereupon only water can escape from the trap. When water level falls, the ball drops onto the seat and prevents passage of steam. The inch or more of water in the trap at all times prevents escape of steam.

Air or steam only, *not* water, rise through the air passage D into the vent chamber whence the thermostat E permits only the air to escape, closing against the passage of steam, when the air has been removed. The thermostat seat F is stainless steel. No simpler construction of a steam trap giving equally certain results is possible. The absence of complicated parts cuts weight, cost and repairs.

Large Capacity, Compact Design in Cryer Trap No. 10

After exhaustive tests and approval by prominent architects and engineers, the Cryer Condensation Trap No. 10 is now announced for general low pressure heating and industrial use. Extra large capacity and trouble-free operation are combined in a compact design, small enough to be used anywhere.

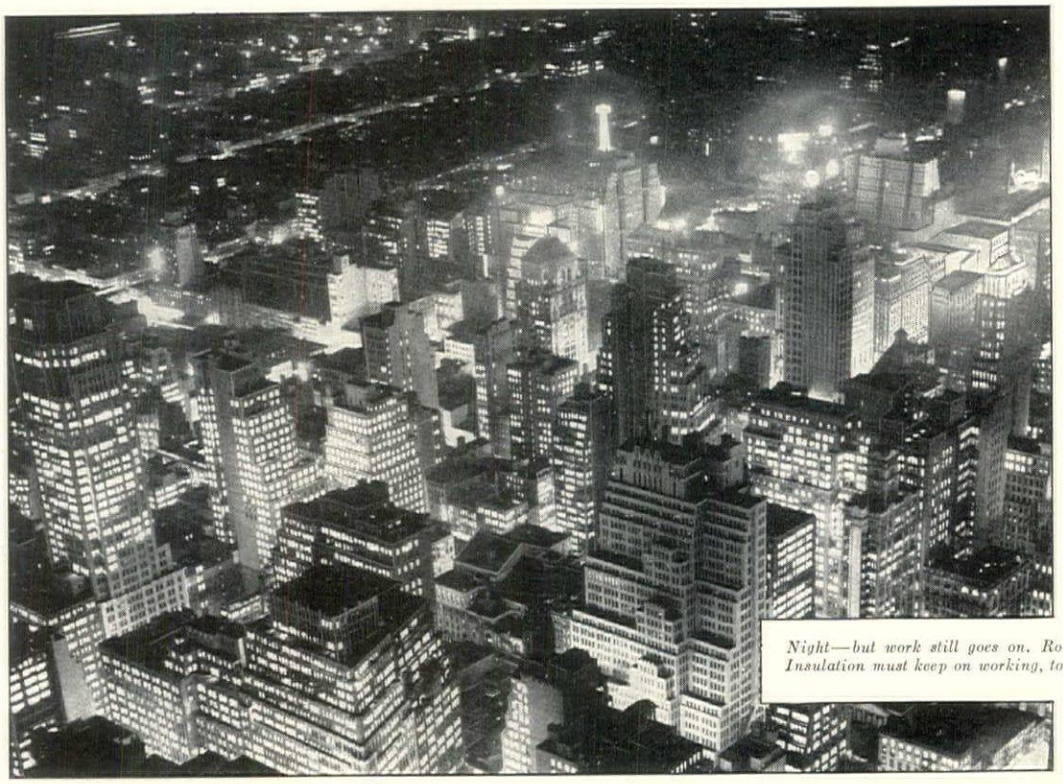
The elimination of all but two moving parts explains the compact design and the simplicity of operation explains the large capacity of the Cryer Condensation Trap No. 10. Levers, cams, buckets, cotter pins, etc., are absent.

This trap gives positive results with only a nickel-plated seamless copper ball in the main chamber and a thermostat in the air by-pass. (See explanation of operation in an adjoining column).

The principle of the ball float control is not new, of course, having been used successfully in over half a million Cryer traps.

There is nothing to get out of adjustment. The ball float contact with the seat is positive but light, and eliminates the possibility of sticking or binding always present when levers, cams, etc., are used. The air passage at the top to the thermostat is so large that the possibility of dirt choking it is virtually eliminated. The seat below the ball is continuously kept clean by the swirling action of the entering condensate. Capacities range from 1000 to 6000 lbs. per hour, and sizes are from ¾″ to 2″.

These are strong claims, we realize. All can be and have been substantiated. Let us run a test for you or your engineers at your convenience. Phone MUrray Hill 2-7320 for an appointment, or write us.



Night—but work still goes on. Roof Insulation must keep on working, too.

Even at night

ROOF INSULATION MUST PROVIDE COMFORT

MOISTURE and roof insulation are constantly at war. Unless the insulation has high resistance to moisture absorption, its efficiency becomes quickly impaired. Then it fails to do its job—in giving comfort—in saving fuel—in guarding the roof deck.

These troubles can be avoided by specifying roof insulation that resists moisture. And resistance to moisture is one of the strongest recommendations for Temlok, Armstrong's new low-cost fibre board insulation. So, it assures economical protection for roofs, since Temlok maintains its insulating efficiency over a long period of time.

Temlok, fabricated from the heartwood of Southern pine, has low conductivity. It is also structurally strong, light in weight, rigid, and easily handled. It provides a strong, firm base for roofing.

We recommend that Armstrong's Temlok be applied in at least the solid-inch thickness. Experience shows that at least a solid inch of insulation is needed for adequate roof protection. Temlok also is available, however, in the half-inch thickness to meet the requirements of those who wish to specify layers of half-inch insulating material.

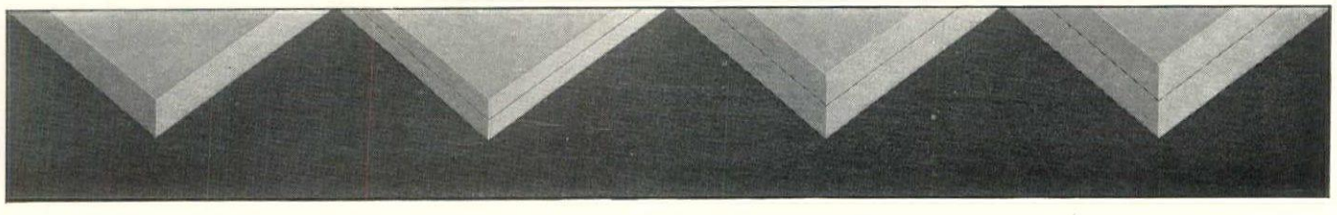
We suggest that you send for samples and complete information about this low-cost insulation. Armstrong Cork & Insulation Company, 900 Concord Street, Lancaster, Pennsylvania.

Armstrong's (A) *Product*

Armstrong's Temlok

Low-cost, Efficient Insulation for Roofs

SOLID 1″ LAMINATED 1″ LAMINATED 1½″ LAMINATED 2″



THE
ARCHITECTURAL
FORUM

VOL. LIV, No. 5 MAY, 1931

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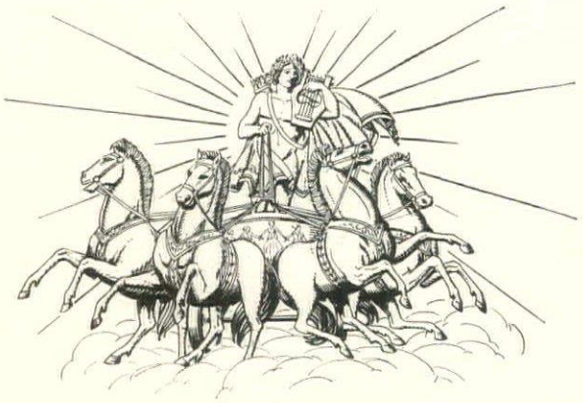

RU-BER-OID BUILT-UP ROOFS ARE USED THE WORLD OVER

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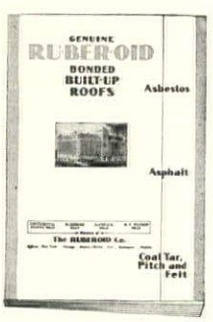

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The Architectural Forum

THE
ARCHITECTURAL
FORUM

VOLUME LIV NUMBER FIVE

MAY 1931

THE MECHANICAL EQUIPMENT OF THE LOS ANGELES STOCK EXCHANGE

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RALPH E. PHILLIPS, CONSULTING ENGINEER

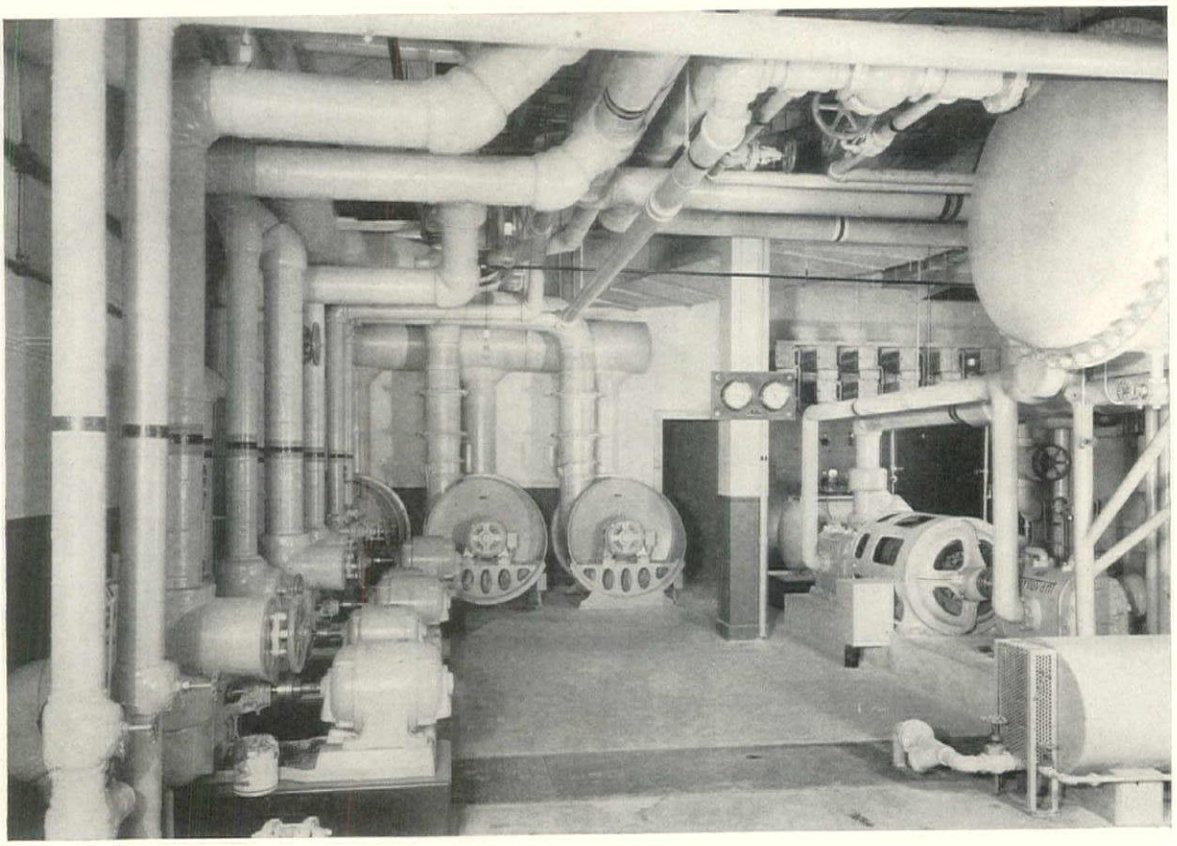
THE provision of mechanical systems within a building is invariably prescribed by the organization of the entire project and is dependent upon the conditions of space as influenced by the pressure of a particular activity. A center of trading requires certain general devices of floor arrangement, lighting, ventilation and communication. There must exist some area which is public to all the traders; and in addition some portion of the total space must be reserved for the privacy of individual transactions. Whether these spaces are lighted naturally or artificially, the source of light must be constant and adequate. Ventilation must be provided to fill the comfort needs of the majority of the persons within the trading area, and facilities for communication between themselves and with outside agencies must be dependable, instantly available, and fast. In addition to these general requirements, the various special activities of variously organized groups of traders may call for many other devices that, depending upon these activities, may be rightfully considered as vitally necessary to the performance of a daily routine.

In any building that is to house the organization of a modern stock exchange this is particularly true. The importance of accuracy, expedition, and attention to detail is too well known to need comment. These things in combination form the basic requirement of the problem, and the solution of it demands the rigid control of all elements that condition activity. In the building for the Los Angeles Stock Exchange an attempt was made to provide mechanically, for every contingency, which, if uncontrolled would tend to interrupt the usual orderly flow of business. Structural or mechanical control of sound, light, heat, ventilation and air conditions, and facilities for communication were therefore provided. In addition, since a variation in human elements is inevitable, the methods employed have, in so far as is possible, been made fully automatic.

To promote quiet and comfortable conditions throughout the year, the building was sealed. The windows are fixed and the building is ventilated, and the air conditioned by a mechanical system. The entire trading room is artificially lighted, and standards of illumination were carefully studied. A pneumatic tube system was installed in the board room and its auxiliary rooms for the transmission of orders; dictaphone systems connect sundry departments to each other; all clocks and time stamps are synchronized to the second in order to facilitate the rapid and accurate execution of orders. An annunciator system in the board and lounge rooms informs the trader where and when he is wanted, and enables him to signal his exact location to a clerk in his booth. An automatic telephone system connects various departments and a communication from without the building is automatically signalled to the trader on the floor.

SOUND INSULATION

Most of the ceilings, throughout the building, and many of the walls of the larger spaces are treated with sound-absorbing, or acoustic mate-



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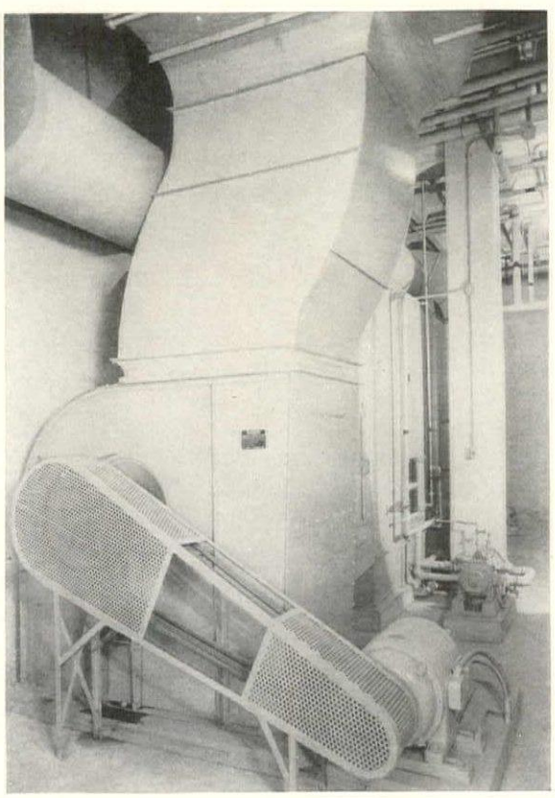
The machinery room in the basement. Every effort was made here to decrease the noise at the source by isolating the sounds of machines, ducts, etc.

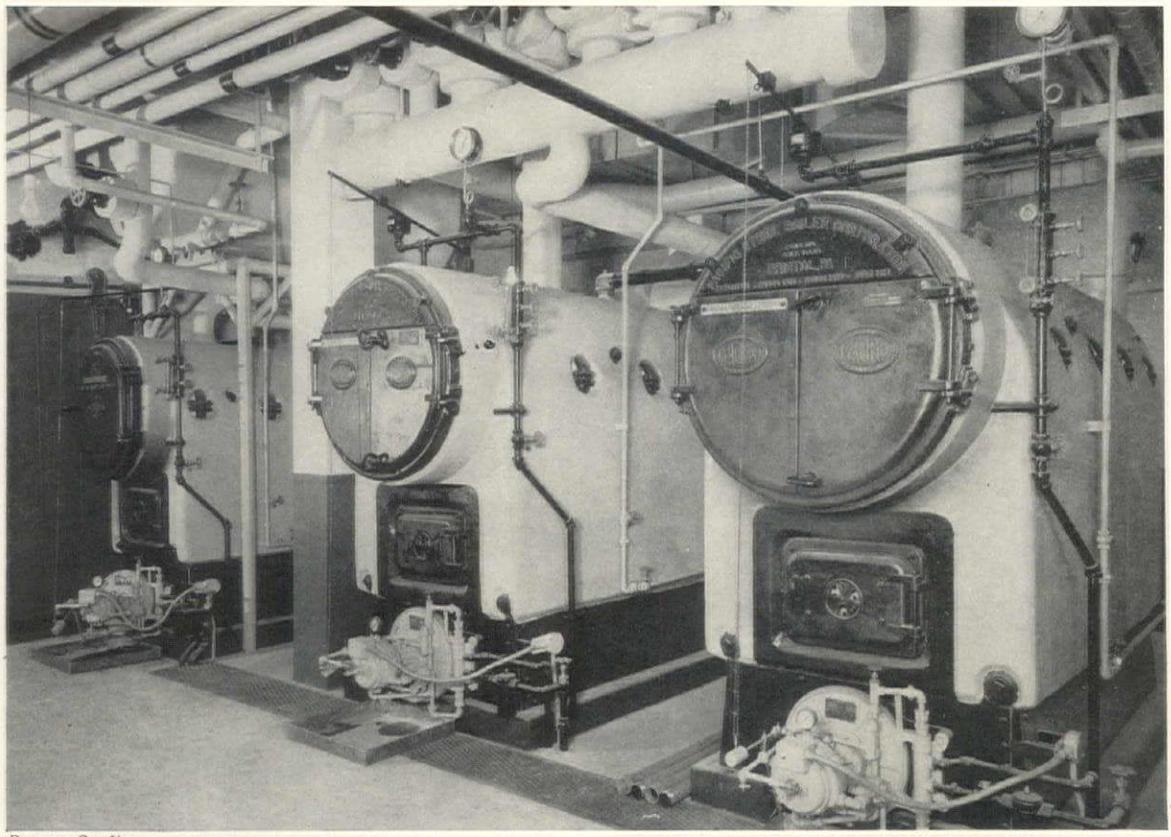


One of the four fan rooms, in which is located a supply fan, a dehumidifier, and an exhaust fan

rial. In the lobbies and corridors of the first floor the material is acoustic plaster. The ornament as well as the plane areas have been made of the material, and have been treated with color and gold leaf. Although painting lessens to some degree the efficiency of a sound-absorbing substance, the amount of the material employed offsets this.

In the Board Room, where quietness is most essential, an acoustic tile has been used on all walls above the wainscot holding the quotation board. The tile, one and one-half inches thick, is of a material similar to acoustic plaster and has an absorption value of about 50 per cent at a frequency of 512 vibrations per second, which is the average intensity of noise met with in rooms of this type. The panel in the center of the ceiling is of acoustic plaster trays filled with mineral wool. This combination of materials has an absorption co-efficient of approximately 75 per cent at a 512 pitch, though this value is lessened slightly because of the painted decoration over the tile.

The Governing Board Room, though smaller than the trading area, required the maximum amount of silence, and the ceiling has been cov-



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The three low pressure, rotary type, oil burning heating plants. The two large ones are used to supply heat, and the small one to supply hot water

ered with an acoustic felt one inch thick, finished with a porous fabric. The use of a heavy carpet on the floor further reduces the effect of noise. The same kind of acoustic treatment has been installed in the executive offices. The general work spaces, however, are finished on the ceiling with a porous fibre-board.

Throughout the design of the various mechanical installations, care was taken to obviate the necessity of eradicating noises *after* the building was completed. Every effort was made to lessen noise at the source, and toward this end the usual methods for isolating the sounds of machinery, air ducts, plumbing pipes, etc., were employed.

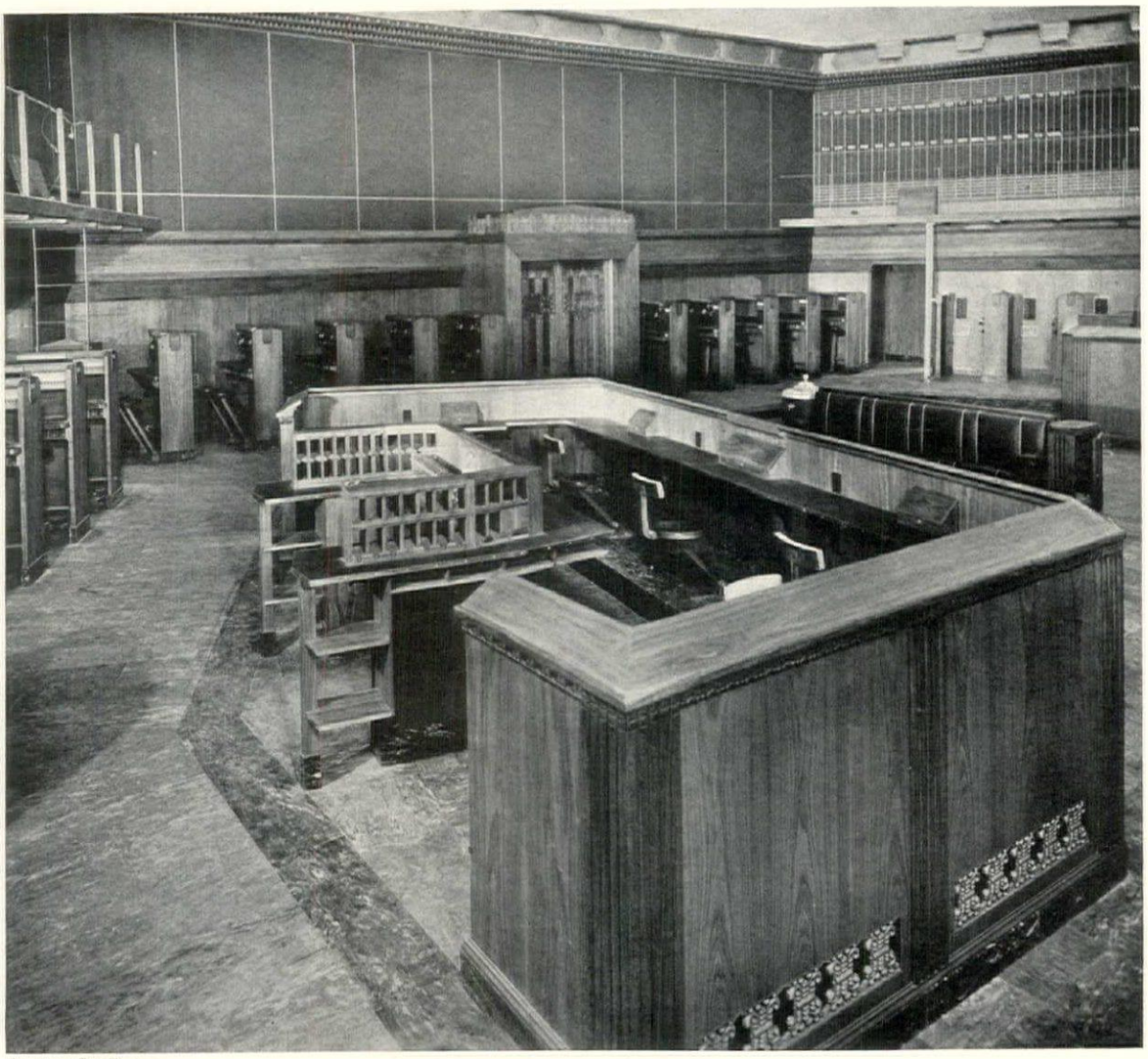
LIGHTING

It was desirable from the standpoints of efficiency and appearance to provide in the public and semi-public areas systems of concealed source lighting. Though they cannot properly be called indirect, the systems have been designed for a diffused and even distribution that would approximate daylight.

This was especially important in the board room where a general lighting system was designed to give a theoretical intensity of 12.75 foot candles at a working plane established 3 feet above the floor. After installation an actual test, made with a MacBeth illuminometer gave an average intensity of 11.85 foot candles on the working plane from the central light source. The light from the fixtures over the quotation board increased this intensity to approximately 15 foot candles.

The central lighting fixture is an interesting feature of the room, both in regard to design and construction. The light box, 8 feet, 6 inches wide, 3 feet high and 233 feet long, is of No. 16 gauge smooth steel, finished with aluminum paint. It is concealed by ornamental glass supported on a framework designed as a border for the ceiling.

Steel walkways are provided above the entire length of the light box which is fitted with hinged doors in the top. The rippled glass reflectors and lamp housings are installed at the lower outside edge of the box, the center of light distribution being about 45 degrees from the horizontal. Receptacles are provided for 150 watt lamps on 9-inch centers, and are wired alternately for half and full intensity. 306 lamps are used having a total load of 45.9 K.W. The fixture is completed by three rows of frosted glass troughs about 2



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A general view of the board room showing in the foreground one of the trading posts with spaces provided for five dealers. The hyloplate board may be seen in the background, the ladder on the left leading up to the board boys' gallery. On the opposite page is a close-up view of the pneumatic tube station within the trading post; at the sides are rows of pigeon holes for trading slips. Directly in the center is an annunciator for the attendant. Note grilles at left

feet long, 1 foot wide and 4 inches deep which overlap in successive steps. The inner troughs are open at the ends and serve as an exhaust vent for the room ventilation system.

HEATING, VENTILATING AND AIR CONDITIONING

These systems have been designed to provide constant conditions of temperature in all portions of the building. The heating system is divided into two parts. From the sixth to the eleventh floors, inclusive, heating is by a direct radiating, two-pipe, down flow, vacuum return system with concealed, fin type radiators, manually controlled. Special rooms such as the Governing Board Room, etc., are thermostatically controlled, while all other radiation is manually operated. Most of the other rooms are heated from stacks by the ventilating system.

Heat is supplied by two steel welded boilers; a small one of a like type being used for hot water. All three operate at low pressure with rotary-type oil burners. The vacuum pump for the heating system is automatcially operated.

The roof mains are split so that either the east or west units may be cut off by remote control using air operated valves with air switches located in the engineer's office.

Due to the desirability of maintaining different conditions of temperature and humidity in different parts of the building, the air conditioning system is divided into four units.

1. Air washing systems for the basement and ground floor areas in general, including mechanical rooms, store rooms and entrance lobby.
2. Conditioning system for the trading room and members' lounge, first floor.
3. Conditioning system for clearing house on the fifth floor.
4. Conditioning system for the sixth to the eleventh floor, inclusive.

The air conditioning plant is equipped with 120 tons of refrigeration using Methyl Chloride as the refrigerant gas, and it is automatically controlled by thermostats immersed in the water coolers. Each system consists of a supply fan, a de-humidifier, and an exhaust fan which is arranged to return the air to the supply system, discharge it to the outside or to partially return and partially discharge the air. A thermostatically controlled bank of indirect heating units is located on the discharge side of all supply fans.

The refrigerating plant consists of two 60-ton rotary type compressors powered by a 150 H.P. squirrel cage motor operating automatically on the coolers through a temperature range of 40° to 46° F., and two rectangular cast steel coolers with vertical tubes. One of the coolers supplies the de-humidifier on the third floor and the other the de-humidifier in the pent house. The air conditioning for the super structure is split into three parts so that the east wall, west wall and interior rooms can be supplied with different temperatures of air, as the outside conditions on the various exposures vary.

The condensing water for the refrigerating plant is cooled by means of a gravity cooling tower, designed as an ornament of the building and located on the roof.

PLUMBING

Due to the "hard" quality of Los Angeles water, a battery of softeners was installed, through which all of the water used in the building passes. Natural green sand mineral was used as the medium for softening. A filtering and cooling system for drinking water was also included. The water is filtered through charcoal filters and chilled by an independent refrigerating plant of 5-ton capacity, using ammonia as the refrigerant. The hot water heater is of the straight tube floating head type. All hot water is circulated by gravity back to the water heater, which is connected to the common steam header. During the heating season it is possible to supply both heating and a hot water heater from the two main boilers. During summer months the water heater is supplied from the small boiler.

Sixty-five per cent yellow brass piping was used for the hot water system, galvanized genuine wrought iron piping for the cold water system and galvanized steel piping for the wastes and vents. Water is supplied from a roof tank of 5,000 gallon capacity.

Due to the unalterable location of the various departments of the exchange, the toilet facilities could not be installed in line. While this would have been a great saving in piping costs, it was impossible under the circumstances.

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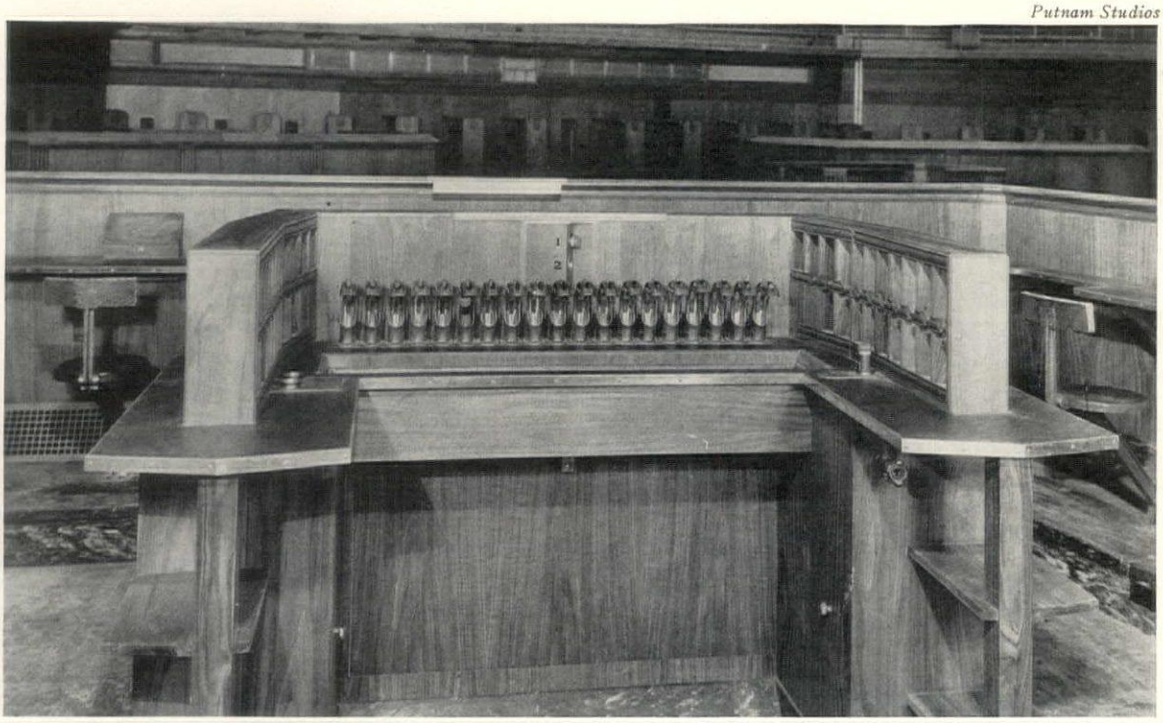

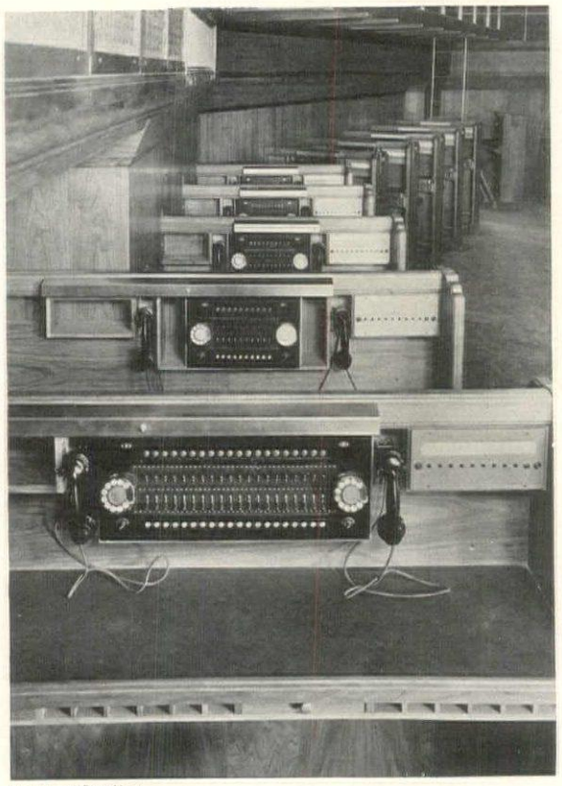

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Detail of member's booth with typical electrical apparatus, including annunciator and telephones

PNEUMATIC TUBE SYSTEM

A general description of the trading room is necessary to visualize the extent of the pneumatic tube system, which serves 448 stations in all. Around the exterior walls of the room there are sixty-four members' booths; in the center of the trading room are four trading posts and a ticker transmitter station. Adjacent to the trading room is the comparison room and directly above the trading room is the clearing house. From each of the members' booths there is a 1½-inch sending tube to each of the four trading posts and to the comparison room. The trading posts are cross-connected with a 1½-inch sending and return tube. From each trading post also there are 1½-inch sending tubes to the Postal, Federal, and Western Union Telegraph offices, located on the ground floor of the building, and from each of these offices there is a 1½-inch sending tube to each of the four trading posts above. Each trading post is connected by a 1½-inch tube to the telegraph tube stations on the trading room floor to return the carriers to their original position. From the comparison room there are 3-inch sending and return tubes connecting it to the clearing house. All technical departments above are connected to a central tube station with 3-inch sending and return tubes for the transmission of their communications.

This system, while complicated and expensive, has proven an important factor in the speed and facility of trading, eliminating the need of many runners who interfere with traffic on the trading floor and cause general disorganization during a fast market. The pneumatic tubes have been fitted with a high pressure blow-out system, so that in case of stoppage they may be immediately cleared.

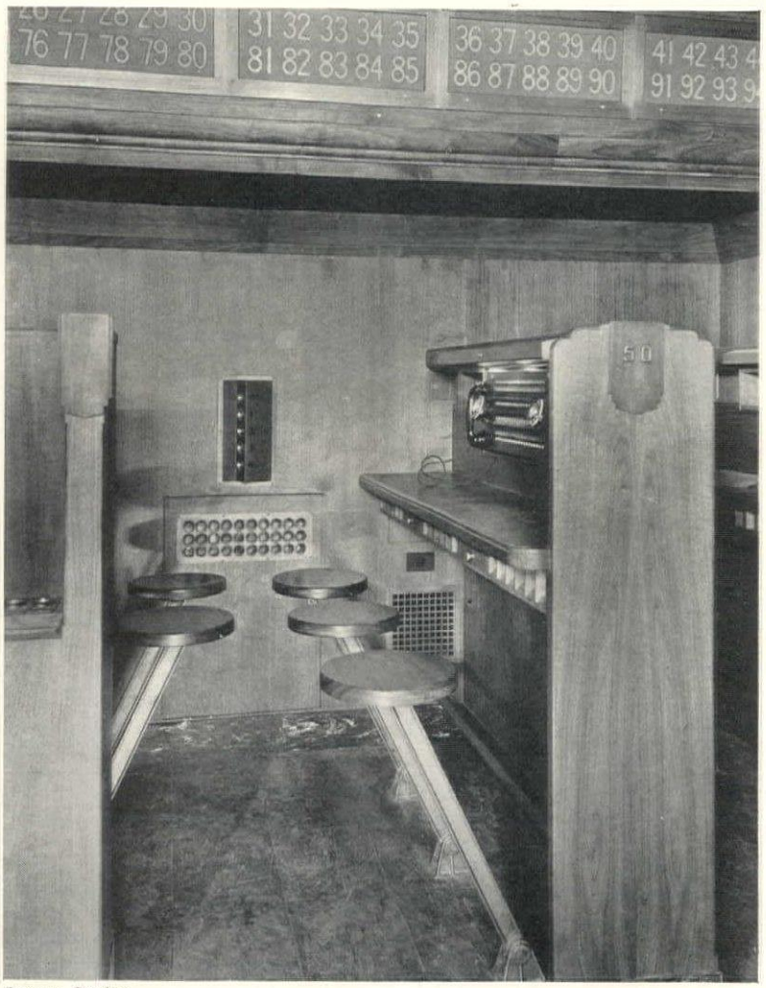
COMMUNICATION FACILITIES

The peculiar type of business carried on in a stock exchange requires an extensive telephone system, which will enable traders to communicate at will with others throughout the building or outside it. As the members do not always remain in one locality throughout the trading period, some method of announcing incoming calls had to be devised which would inform them, no matter where they were, that they were wanted. In order to eliminate noise, lamps, instead of bells, were used as signals.

Cables from the main telephone terminal room, which contains the main frame, relay panels and automatic switching machinery, connect with the P. B. X switchboard on the third floor, the telephone terminal cabinets on the upper floors, and also to each of the eight terminals in the exterior walls of the main board room on the first floor. Additional lines are run from the relay panels to the terminal cabinets of the board room signal system. These operate the turret boards in the booths and the main annunciators in the board room. A continuous duct from the terminal cabinets in the board room is run around the outside of this room with an opening at each member's booth, through which the cable is brought to the turret booth therein. In general these boards are of ten station capacity, but some of the larger booths carry twenty station boards. The system is so designed that any two booths may communicate with each other without the services of an operator. It is also possible to call an outside line by using a prefix number.

In connection with the board room signal system, there are two main annunciators, one on each side of the board room. Each member of the exchange is designated by a number on the board, together with two lamps, one white and the other red. The white lamps may be operated from any of the trading posts or from the members' booths. The red lamps are operated by incoming telephone calls and are disconnected automatically with the answering of the call. Push button stations have also been installed at each of the trading posts and the lounge room is provided with both a push button station and an annunciator, which operates in parallel with that of the main board room.

Each member's booth is also provided with an annunciator which indicates calls from the vari-



One of the ten large booths containing five collapsible seats, desk ledge with pigeon holes and drawers, an annunciator, pneumatic tube station, telephone switchboard. The smaller typical booths contain two seats instead of five

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ous trading posts, the lounge, and the comparison rooms. The entire system is designed to operate with 12-volt alternating current and all wiring is through lead-covered cables.

A small private telephone system is installed near the dumb waiters for use between pantries on the various floors. It is of the selective ringing, common talking type, powered by a storage battery and trickle charger.

Supplementing the two telephone systems is a dictograph system for the executive offices, board room guard, print shop, etc. Most of this system's cable-runs on the upper floors are installed in underfloor ducts.

TIME STAMP DEVICES

The priority of orders taken during the course of trading is of extreme importance to the traders. For this reason a time clock and time stamping apparatus was installed, designed for the greatest accuracy and speed. It is of the hourly-self-regulating type, having an impulse accumulator with one second, six second and minute impulse relays. The system operates from a motor generator set with a 110-volt floating storage battery reserve, the battery being assembled in a rack two tiers high with cells of the pasted plate type in sealed glass jars. These batteries make the system entirely independent of outside sources for its energy. There are fifty-six storage cells in the battery, operating on 110 volts, direct current. The motor generator set is controlled by a program device on the time clock system and will usually be in operation during the hours of trading. It will normally carry the time clock and time stamp load in addition to charging the battery. The warning, opening and closing signals are controlled by the program device, which is of the disc type and may be set for any program desired. A Meneely bell is used for these signals as its tone is more pleasing than that of the ordinary bell. Various secondary clocks are provided in the different departments, including two in the board room. The master timepiece is located in the engineer's office, and is of the mercurial compensating pendulum type. The control panel is equipped with ammeters, relays, etc., and also a Sangamo ampere hour meter.

ELECTRIC CONTROL EQUIPMENT

Provision has been made in the electrical system for future installation of automatic quotation boards. Conduit has been provided between the various locations of future equipment, which will be connected when these boards are installed. A paging system has also been provided for which will be used to locate persons in any part of the building who cannot be reached by telephone. The system will be controlled by the operator at the P. B. X. switchboard.

The water pumps which supply the roof tanks are regulated by an automatic house pump control panel which is divided into signal and control sections. Under normal operation the float switches in the tanks will start and stop the house pump motors, but in case of failure, the high and low water alarm system will indicate to the engineer that the control section is not functioning properly. The signal section consists of red and green lamps which indicate low and high water levels, and also a bell which attracts the engineer's attention if he is not in the machine room. The flexibility of the control panel arrangement allows either pump to be used on either section of the roof tanks. Provision has also been made for manual control.

The power supply for the building is derived from outside sources. The load is divided between two service companies, the power being 50 cycle and the light 60 cycle. A vault for the transformer is provided adjacent to the main switchboard room in which the primary disconnect switches are operated. The front face of the switchboard is of ebony asbestos veneer with beveled edges; the switch handles, etc., are chromium plated.

The power panels, for the various motors throughout the building, are of the dead front, dead rear type. They have disconnect switches, magnetic control switches, speed control (where there are variable speed motors) and push buttons.

ELEVATORS

The elevator system consists of one service and two passenger machines. The latter operate at a speed of 600 feet per minute, and are of the variable voltage, full signal control type, automatically started or stopped by button signals within the cab or at landings. Cab and hatchway doors open and close automatically by air pressure. The service machine is slow speed, straight automatic, alternating current, gear traction, with manually operated cab and shaftway doors. Provision has been made for the future installation of an additional passenger elevator to serve the observation gallery only. Machinery for the elevators is located in a pent house below the cooling tower.

SAFE DEPOSIT VAULT

The construction of the safe deposit vault in the basement follows the most accepted practice in that type of work. Its walls, floor and ceiling are build of heavy reinforced concrete, lined with heavy steel plates.

The most interesting feature of the vault is the great 20,000-pound entrance door and vestibule frame. It is formed of one-piece open hearth steel casting with jamb returns within, which are built of heavy sections of various kinds of steel, alternating so as to offer the maximum degree of resistance to all manners of attack. The door is forced into its seat by a duplex horizontal pressure system having four points of contact on the outside surface of the door. It is operated by a six-spoke pilot wheel through a series of worm and bevel gearings, and is forced in place against a gasket of usudurian packing, which, with the ground and polished surfaces of the door and jambs, doubly insures an entrance which is liquid tight. The mechanism for the vault's time-locking device is enclosed by a plate-glass door to guard its bearings and journals from abrasion by dust and dirt.

As an additional precaution, the door is equipped with a chemical compound, which, when the vault is attacked gives off smoke and tear gas to hinder the operations of possible illegal entrants. Ventilation, which offers the same burglarious protection to the vault is, of course, provided. The installation is so made, however, that should anyone be accidentally locked in the vault, a steel plug may be removed from the interior and an electric fan set in its place to prevent suffocation.

EDITOR'S NOTE: A general description of the plan and the characteristic elements of the design of the Los Angeles Stock Exchange will be found on pages 523 through 528 of this issue. The building is illustrated on pages 531 through 546 of the Plate Section

ASSEMBLY OF SPECIFICATION DATA

BY
HAROLD R. SLEEPER
OF THE OFFICE OF
FREDERICK L. ACKERMAN, ARCHITECT

PRIOR to the actual writing of any specification occurs a period of gathering information from a variety of sources to form a nucleus of known data about the particular job in hand. This we may call specific data. Further than this an office should have methods of collecting, filing and digesting new specification material which may appear day by day. This we may call general specification data. The problem with both of these items is to assemble them in a usable form accurately and economically.

The actual writing of a specification is simple or difficult dependent, to a great extent, on the office practice and system for recording and filing this information. The handicap of a small office in this matter is very real; its members are likely to rely on the "under the hat" method of collecting and saving their data. It is much safer even for the small office to insist on some method of catching, keeping and dispensing all of the known facts and figures to be used in specifications.

GENERAL SPECIFICATION DATA

Specification material and data may come from myriad sources such as magazines, trade bulletins, government agencies, National Fire Protection Association, American Standards Association, Producer's Research Council, manufacturers' catalogues, manufacturers' representatives, from personal observation, and from old specifications. One very valuable reference source is a carefully filed scrap-book of advertisements culled from professional magazines. All this source information cannot be digested at once and should be filed until needed. A separate vertical file may be used, with still cards separating the various trades, and visible indices on these containing the names of the trades, their letters or numbers. However, in offices that use the A. I. A. catalogue file, headings are available at the start of each trade. The material should be gone over often to weed out the useless and antiquated. If an office standard specification is used, all new items or new specifications should be incorporated into them from the file and then thrown out. No matter which method of writing specifications is used by an office, the specification writer should have easily available the standard specifications works such as Stevens Master Specifications, the Specification Record (American Specification Institute), the New York Building Congress Specification (or similar work of local origin, if available). In addition, a catalogue such as Sweet's or the National Builders Catalog should be near at hand.

In offices where a standard is not used, old specifications can be made most useful if broken up into the various trades and all similar trades filed together. This method avoids a desk littered high with huge volumes of old specifications. When the next chapter is started, the plastering folio is filed, and the next set of old chapters taken out. Not all old specification chapters need to be placed in the file; only those that contain new or distinctive material, those that have been very carefully done, and those representative of the various types of work done in the office. Old, outmoded specifications should be removed from the file, inasmuch as they can serve no useful purpose. Three or four years should be the maximum time to leave specifications in such a file, unless they contain some special type of work that is not repeated at frequent intervals.

Recommendations for General Specification Data

1. **Form file for all specification data as received from all sources. This may be a separate file in still manila folders with labeled tabs, one for each main trade heading.**
2. **Frequent weeding out of material in the files.**
3. **Have available specification standards for ready reference.**
4. **File good office specifications under trades in separate file. Weed out all old specifications.**

SPECIFIC DATA

"Specification" is explained in the dictionary as the state of that which has been made specific, so "specific data" forms the very essence of the work. It should be collected and recorded for future use with every possible care. Whether it arrives via letter, telephone or conference, some definite method of holding it intact for use when needed must be provided. These decisions as ap-

plicable to a job are just as important in a one-job office as in a huge organization. The following recommendations will prove helpful in establishing such a system.

RECOMMENDATIONS FOR SPECIFIC DATA

1. Make "conference data sheet" or "memo" for each conference which makes definite decisions or recommendations.
2. Form a "conference data sheet file" for every job.
3. Make "data sheet" or "memo" of every decisive telephone call and put it in this file.
4. Sub-divide letter file so as to have owner's letter separate.
5. Form active file for specification in progress for each job to receive all catalogues and data being considered. This would contain preliminary specification checking list and "snakes." (The snake is a strip of paper containing specification notes.)
6. Designate a set of prints as specification writer's copy. On these, jot down notes of materials and other items. Note all errors and discrepancies in drawings and conflicts with specifications.

WRITING THE SPECIFICATION

With the preliminary decisions made, next a "dummy" is prepared in one of many ways. According to results of a questionnaire, the great majority of specifications are based on old ones. The practice of using one old specification to guide the writer throughout the new specification is dangerous. A more flexible method is to use several old specifications, choosing the one for each chapter which bears the nearest resemblance to the chapter to be written. Further than this, several old chapters may serve to form one new chapter. Certain items may sometimes be entirely re-written or copied from manufacturer's literature or from standard specifications. Fully 50% of our architects' offices use one or the other of these methods to form the new work.

This method has the advantage of being perfectly flexible; methods or materials which proved unsatisfactory in previous jobs may be omitted or revised and new paragraphs may be added. By their very natures, corrections, rearrangements and changes are possible with the minimum of effort.

The first *longhand dummy* may consist of line after line of page and paragraph references placed in order, with items written in full where old work cannot be used. The typist may then copy most of the work directly from existing specifications, and hence avoid the difficulty of copying pages and pages of longhand notes.

Some architects find it possible to write out the first copy longhand in toto and then have the final copy made from that. Correcting and changing, which is always necessary, cannot be done satisfactorily on longhand copies and such procedure is certain to result in errors. A typewritten dummy is most desirable and really necessary when work is in any way complicated or uncertain.

The typed copy should next be sent to the drafting room to be checked and used in connection with preparation of more drawings; and all additions and changes may be included thereon without re-writing. Such a dummy should be double spaced, although some offices recommend triple spacing. Only a couple of offices boasted dictaphones to set up dummies; these might be used profitably by many offices where one stenographer has to serve several bosses. Some offices cut up and paste old paragraphs on yellow paper and write in changes and additions. If conditions warrant, sheets of an old specification may constitute the basis of a new chapter; changes and additions are made in longhand on the page itself. If an office makes a practice of using such a system, extra specifications must be ordered on every job.

The next most popular method of compilation is to use office standards of either cards or full specifications. These are used by some 22% of the architects questioned (half using cards and half standard specifications). In New York City of the twenty architects questioned, three or four are using the New York Building Congress Specification for Part B of their work. Only two of the offices use their own standard sheets. These sheets are prepared wholesale as standards for certain re-used parts of the various chapters, and are then bound in with the newly written work of each chapter. They serve in the same manner as do the New York Building Congress Specification sheets.

This whole question of standard specifications for the subject matter (also called Master Specifications) seems to be very controversial, because many of the architects mentioned the fact that they were considering adoption of standards, or had given them up after a trial. It seems that the answer is dependent on the type of practice, and that most architects have such a varied field of practice that "subject matter" standards cannot be successfully and economically used by them.

A large organization with job after job of the same type should by all means adopt one or the other "standard" methods. Such an office can afford to spend time and money necessary to keep the standards complete and up-to-date; this, on the other hand, could never be done in the average small office.

Several offices which use standards, proceed directly from this to the final typed specification without the use of a dummy.

The greatest danger in using standards lies in the fact that old specifications become antiquated

and that this system does little to stimulate research or special treatment of the individual job. Too much is assumed as letter perfect, and too little thought need be applied to turn out a seemingly good specification.

SPECIFIC PRACTICES

The office of Holabird & Root of Chicago has developed a very definite method for its attack. With blueprints on the table and a standard check list in hand, items occurring in the job are ticked off. The specification writer's file consists of recent jobs (not over one year old), standard specifications, trade standards, data and miscellaneous data divided by trades.

With a recent specification similar to the job in hand as a basis, corrections and additions are made in pencil or dictated. This is copied by the typist, triple spaced. Corrections are made when the drawings are complete; then the whole is mimeographed. This firm, however, is considering the adoption of an office standard in order to speed up the work.

Mills, Rhines, Bellman & Nordhoff of Toledo go the whole way in the use of the office standard method. Their file of over a thousand white 3" x 6" cards, with additional cards that cover alternate types of work, comprises their standard. Yellow cards are clipped with the standard for scope and where other items are to be added. The final specification copy is typed directly from this assembly of cards. Nothing could be quicker or more direct.

The use of the two part specification, utilizing the New York Building Congress specification standard as part B, is typified by the office of Shreve, Lamb & Harmon of New York City. The first copy of Part A is written longhand, and includes scope and materials (where same are not covered in part B), and any construction items not in part B. For each chapter, Part A and B (B consisting of printed standard sheets) are bound together to make one chapter.

Pond & Pond, Martin & Lloyd of Chicago, have prepared their own blueprinted standards, which are placed here and there throughout the specification where they are applicable. They are very enthusiastic about this way of reducing labor, eliminating typographical errors and cutting production costs.

There are certain very good offices in this country that frankly do not place much emphasis on specifications. Their volumes are short and brief, practically short stories. These offices to a great extent, do high class residential work, and are able to select the best of general contractors, usually on a cost plus system. The horror of specification mistakes and omissions loses its severity under such ideal conditions; the specifications play a small role, whereas the drawings are very fully developed at a large scale and take the brunt of the work.

The importance of an office's specification is, of course, greatly dependent on the function allotted to the specification under its system. Where drawings carry the full burden of scope, at least one-half of the responsibility is taken from the shoulders of the specification man. Where this is a dual duty or given to the specification for some trades, he has more work. If full schedules are used and are prepared in the drafting room, he is relieved from "scope" worry on these trades. Firms that use standard typed forms are usually those that let the drawings or schedule handle the "where."

Albert Kahn of Detroit often has two or three men preparing specifications for the same job at the same time; each man, of course, takes a different trade. First, they make careful notes of items to be included in all trades. Then trades of old specifications are culled over until chapters most nearly allied to the new work have been found, one from one job and one from another. These old chapters being used as a base, they bracket out the portions not used and insert small reference numbers where new items are to appear. These reference numbers refer to longhand notes. Then the typing department makes three copies, the first being hard ribbon, the second the superiorgraph (similar to the Ditto) and the third the ordinary carbon copy. This is their final copy, but pages are re-written when plans change. In this manner plans and specifications are ready at the same time.

Recommendations for Specification Compilation

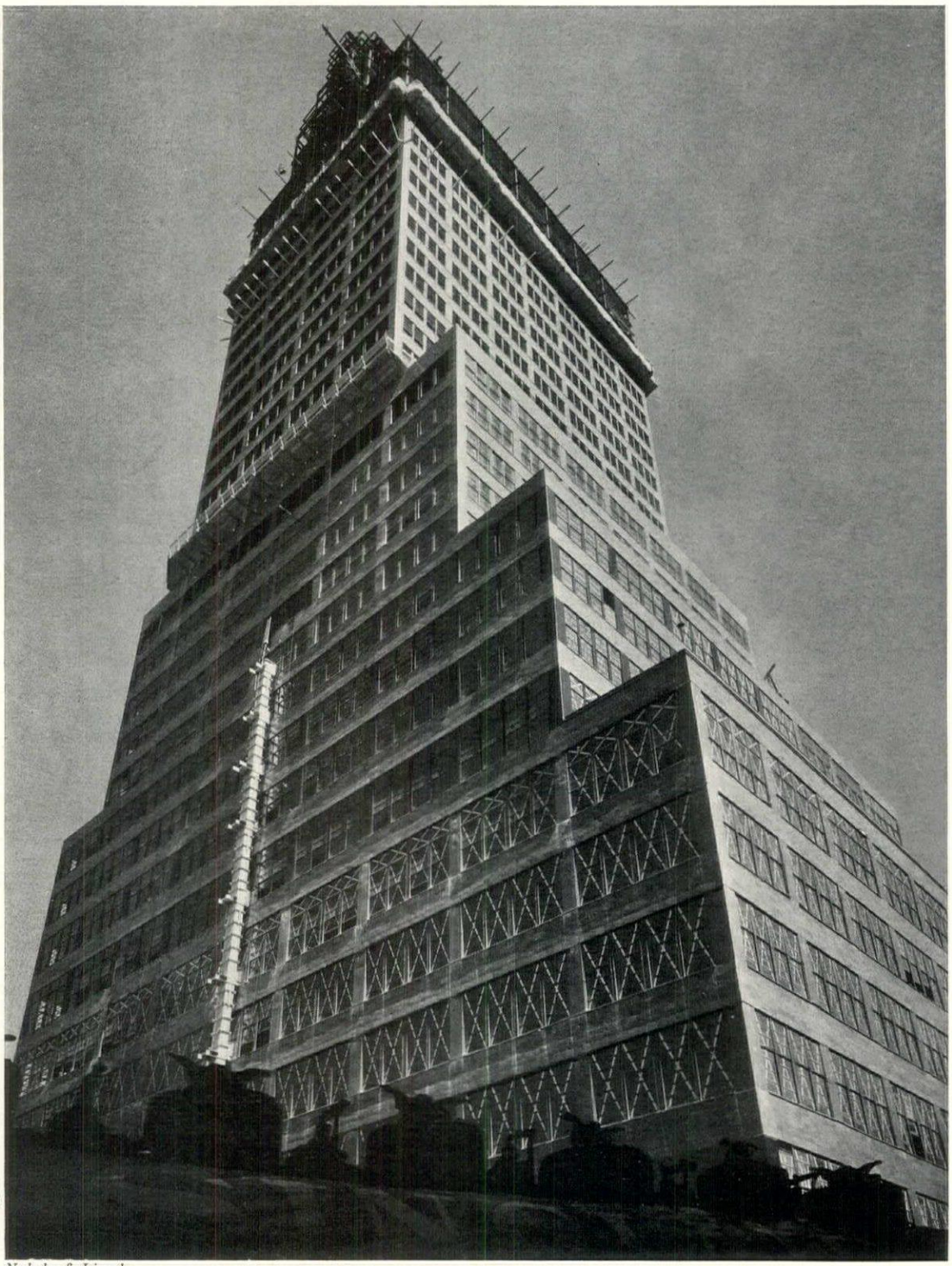
A—For large offices whose major practice involves much repetition in types of buildings:

1. **Longhand dummy, listing references to be copied from office standard specification, or card specifications. (In New York City this might be the New York Building Congress Specification).**
2. **Type double spaced dummy from above, on which changes, corrections and additions may be made. This to be carefully checked by job captain or head draftsman with drawings.**
3. **Final copy. (If New York Building Congress, add printed sheets).**

B—For usual office with varied practice:

1. **Longhand dummy listing references to other office specifications, to standard specifications, to catalogues, etc., by page and paragraph. New items may be written in full. Dictaphone may be used in place of this rough dummy.**
2. **Typed double spaced dummy made from No. 1 on which all changes, corrections, omissions and additions may be made.**
3. **Final copy made from No. 2**

Editor's Note: The recommendations contained in this article were formulated as the result of a nationwide survey, which included sixty representative architectural offices and fifteen contractors. See Mr. Sleeper's article on "The Standard Specification," pp. 237-240 in The Architectural Forum for February, 1931.



Nyholm & Lincoln

THE McGRAW-HILL BUILDING
NEW YORK, N. Y.
HOOD, GODLEY & FOUILHOUX, ARCHITECTS

STEEL, TERRA COTTA AND GLASS

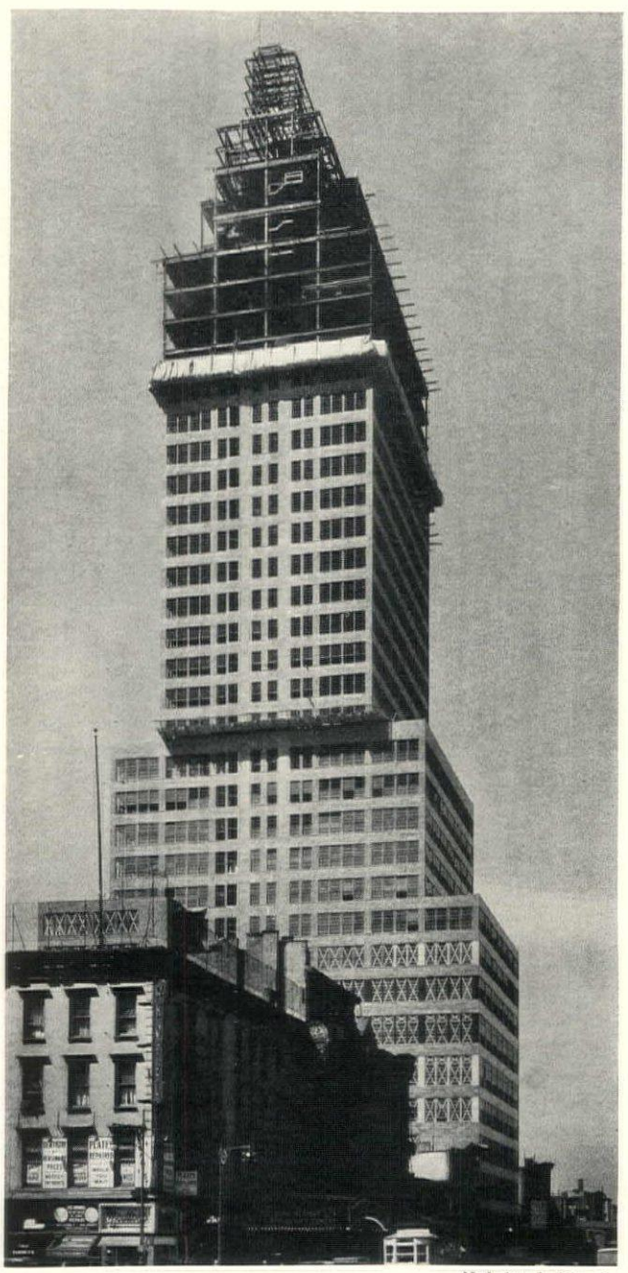
THE PROGRESS OF A NEW BUILDING

THE McGRAW-HILL BUILDING
NEW YORK, N. Y.
HOOD, GODLEY & FOUILHOUX, ARCHITECTS

THE McGraw-Hill Building is, in many ways, an unique one. It was planned to house all the activities of a large publishing business; and the requirements peculiar to these activities have formed the basis for the entire structure—in plan, section, and elevation. No attempt has been made to treat the building as anything other than it is—a series of factory floors, varying in size only to conform to the zoning laws that require setbacks, and superimposed to a height dictated by the economics of the project.

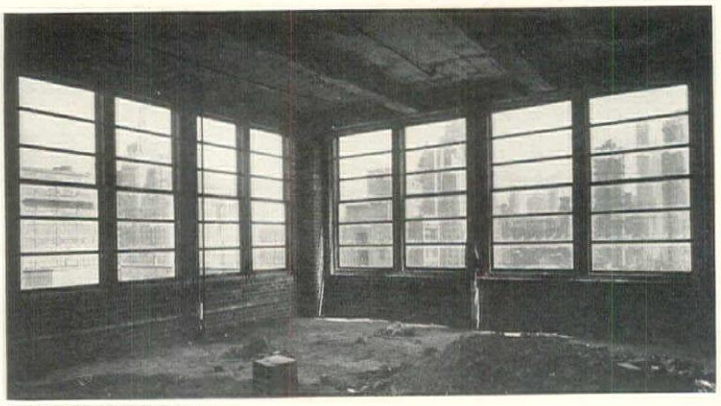
The fenestration provides the greatest practical amount of daylight for all floors. The windows themselves are double-hung, without vertical muntins and are set with no additional finish either on the exterior or interior. All columns, except those in the center of the building, are faced with 12 gauge steel, set 1¼ inches back from the face of the glazed terra cotta spandrels. (See page 624.)

Although architectural detail is lacking, color has been used extensively. The terra cotta spandrels and central columns are a fairly strong blue, shading toward green, and are mat-glazed to avoid glare in the sunlight. Variations in daylight intensity have made difficult a decision on the color of the steel column-facings, the mullions, and the window sash. After many samples had been tried—some of which are shown in the picture on this page—a dull, gray-green was chosen for the frames and mullions, and a reddish-brown, similar to the color of neutralized red lead, for the window sash. Both colors were chosen to harmonize with, but in no way detract from the stronger tone of the terra cotta.

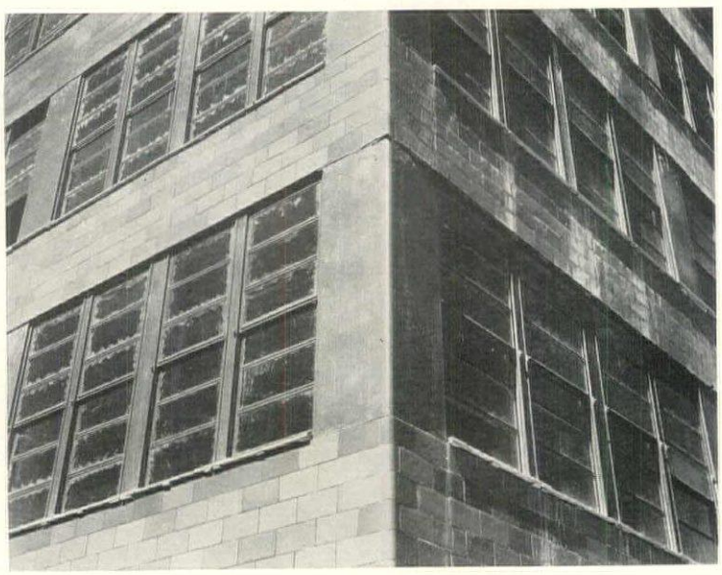


Nyholm & Lincoln

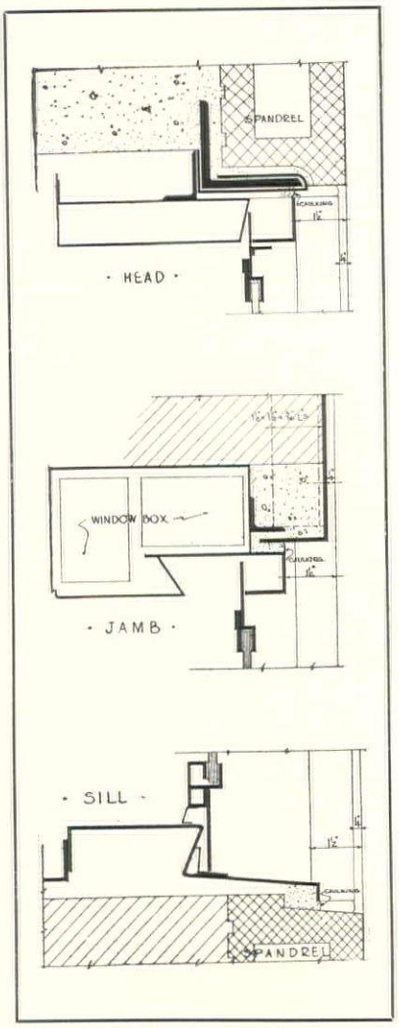
A view of the building from Eighth Avenue. On the opposite page is a detail from Forty-second Street



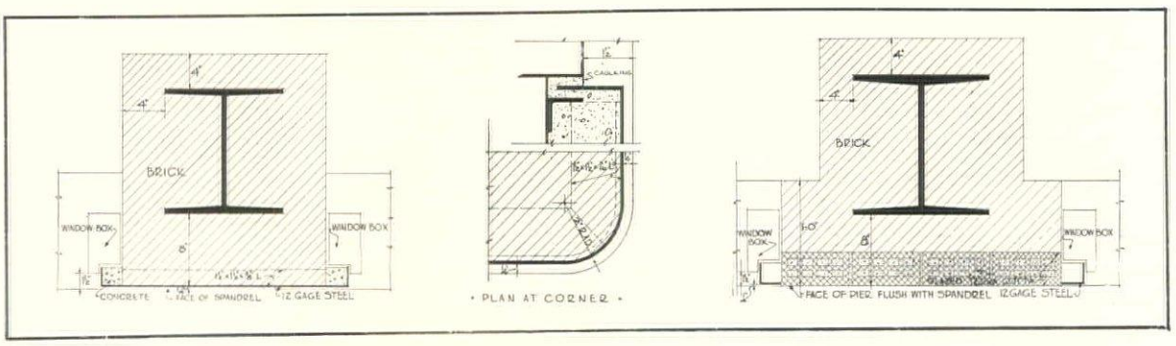
Nyholm & Lincoln Photos



Views of the interior and exterior of a typical corner, with sections through a window, at the right. Notice the simplicity of construction and the large daylight openings



Below are typical details of column, pier, and corner constructions



THE McGRAW-HILL BUILDING

NEW YORK, N. Y.

HOOD, GODLEY & FOUILHOUX, ARCHITECTS

THE EMPIRE STATE BUILDING

SHREVE, LAMB & HARMON, ARCHITECTS

XI. MATERIALS OF CONSTRUCTION

H. R. DOWSWELL
OF THE FIRM OF
SHREVE, LAMB & HARMON

IN previous articles dealing with the Empire State Building, the organization, special features of construction, and the theory back of the general architectural design have been discussed. It is proposed in this article to discuss in some detail the materials used in the construction of the Empire State Building and the considerations which led to their adoption.

Mr. Shreve in his article on organization explained that the Empire State Building was designed and constructed under the direction of a group functioning as a technical board or executive committee, composed of the architects, engineers, builders, representatives of the owners, and on special problems sub-contracting material supply associates. Nowhere did this group function more efficiently than in the discussions and investigations which preceded the final choice of the materials used in construction.

FOUNDATIONS

Since the sub-basement is excavated entirely in rock there were no unusual foundation problems, the only precautions necessary being to determine that the character of the rock was satisfactory, and that there were no underlying beds or pockets of compressible material.

WATERPROOFING

Careful study was given to waterproofing of the sub-basement floor, and the walls of sub-basement and basement. Difficulties which would be encountered in locating and correcting an exterior waterproofing led to the adoption of an interior surface treatment. The sub-basement floor, the floors and walls of trenches and pits, and the walls of sub-basement and basement were therefore given a trowel coat of waterproof cement mortar, 1″ thick on the floors and ⅝″ thick on the walls. The waterproofing on the floors forms the finished wearing surface.

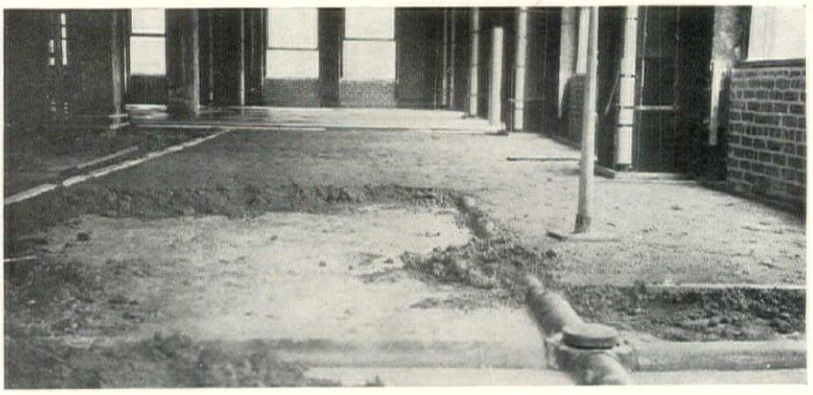
GENERAL FLOOR CONSTRUCTION

The architects and builders made careful analysis of the various types of floor construction available, and after considering all of the elements—dead load and its effect on steel and foundations, speed of construction, cost and facility with which piping and electric conduits could be placed—selected reinforced cinder concrete floor arches and fireproofing as the most satisfactory and economical.

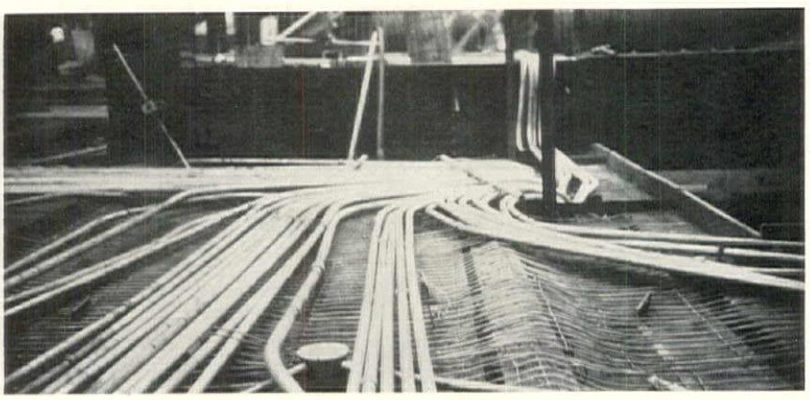
WALL CONSTRUCTION

The July, 1930, issue of THE ARCHITECTURAL FORUM described the window-spandrel-wall detail and its relation to building progress. The choice of the materials involved in the design and detail of this treatment was the result of weeks of careful and exhaustive research. An all metal double hung window with steel window stool and radiator hanger secured to the stool was chosen as the most satisfactory for this type of office building. The design called for an exterior spandrel-facing which would have the same general color value as the window, with a continuous trim framing the windows and spandrels.

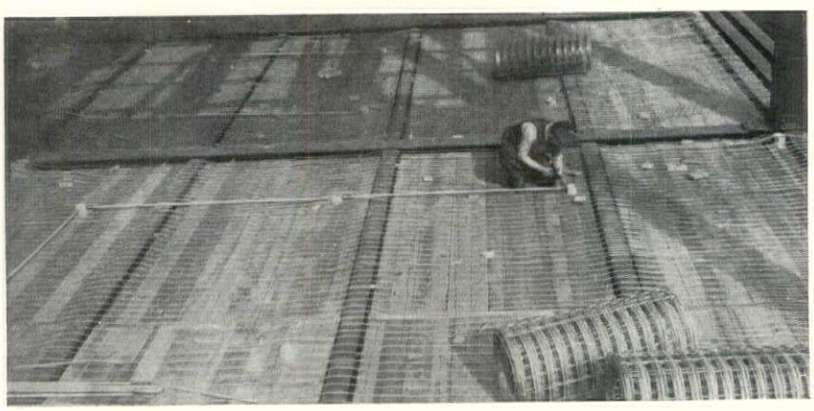
Sound construction called for a spandrel treatment which would eliminate or reduce the number of joints, which in exterior walls, and spandrel walls particularly, have all too frequently permitted the entry of driving rain. The desire to secure an impervious spandrel wall-facing, and the necessity for speed in construction demanded a material which could be erected independently of the general wall construction. Metal offered the most satisfactory solution and since there were only 18 variations in a total of 5,704 spandrels, a cast spandrel with integral ribs for attaching anchors, provided a rapid method of duplication. Cast aluminum was finally selected as the material which would meet the following



Cinder fill placed over concrete floor slabs, covering the underfloor ducts



Conduits laid on wire mesh to be cast in the structural floor slabs



Wire mesh being installed on floor decking, ready for conduits and slabs

requirements:

1. Large, one-piece units, free from warping, readily ornamented, and offering considerable latitude in texture and color.
2. Lightness and consequent ease in handling and erection.
3. Permanency and freedom from maintenance cost.

Similar considerations were involved in the choice of a material for the trim with the added requirement that the color must be more nearly related to the adjoining stone. A second series of tests was set up and chrome-nickel steel with a highly polished finish was chosen.

Specifications and details were prepared in the architects' office covering the rolling, polishing, fabrication, shipping, erecting and anchoring of these materials. In order to insure uniformity in the composition of the chrome-nickel steel, the specifications required that a test piece be cut from each sheet (there were approximately 10,000 sheets required) and subjected to a 100 hour salt spray test. The presence of rust on any test piece caused the rejection of the sheet from which that coupon had been cut. In order to remove all foreign matter from the chrome steel, each section of trim was subjected to a 25 per cent nitric acid bath after fabrication, and then care-

fully wrapped and packed for shipment in cardboard cartons.

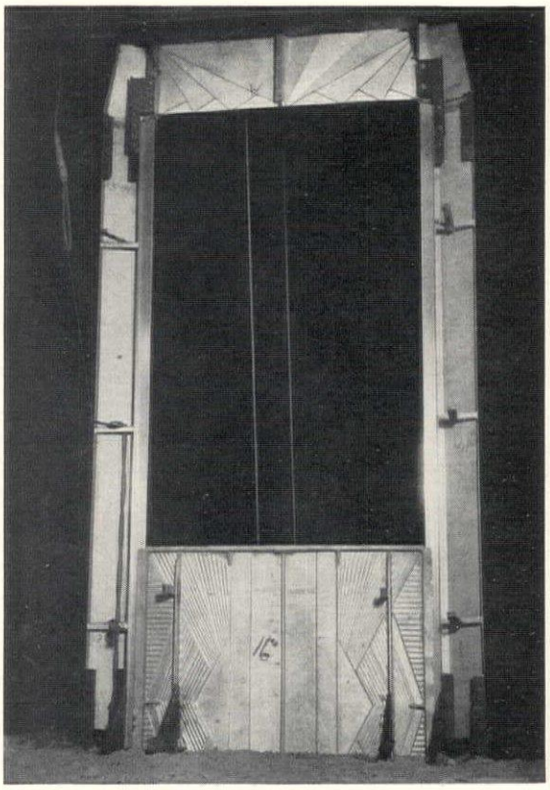
Details were carefully studied to simplify both shop work and erection. An adjustable steel bracket was evolved which could be used, without variation, for anchoring both the spandrels and trim to the structural steel spandrel beams. The trim is in one length for each of the typical stories, two lengths being used only when the story height exceeded the practical limitations of the chrome nickel sheets. Overlap connections between sections of steel trim with a clip on the back, provide for rigidity, alignment and expansion.

The detail progress photographs reproduced in the July, 1930, issue of THE ARCHITECTURAL FORUM clearly illustrate the assembly. There was, however, another major problem involved,—the caulking of the joints between window frames, spandrels and trim, and between trim and adjoining masonry.

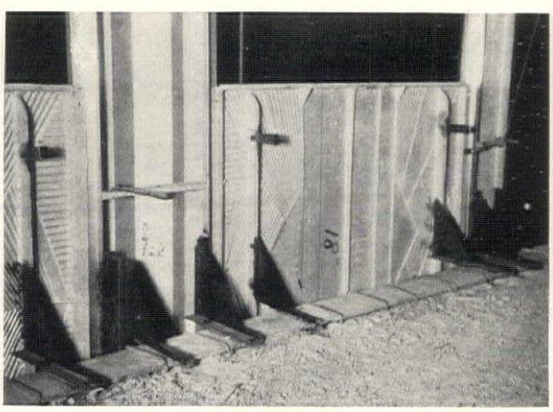
It was estimated that the caulking material would, between the extremes of summer and winter, be subjected to a range of temperature of at least 150° F. Furthermore the light color of the adjacent materials demanded a caulking compound approximating these materials in color. Sample sections of steel were made up, the joints caulked with various compounds and then subjected to temperatures ranging from several degrees below freezing up to two hundred. As a result of these tests, "Pecora" caulking compound was selected. The deeper joints were first partially packed with a picked fibre and then filled and pointed with the compound, using a pressure gun.

Several interesting problems were encountered in the construction of the enclosing walls; these problems were due to the rapidity with which steel had to be fabricated and erected, the decision to use stone for the exterior facing, the housing of radiators and radiator branches within the wall thickness, and the extreme height of the building. The simplification of the spandrel steel, the method employed to carry the wall load, and the provision for radiator branches were clearly illustrated in the isometric drawing accompanying the description of the window-spandrel-wall detail.

Compression in structural steel has, in many tall buildings faced with stone, resulted in cracking and spalling of the stone facing. The probable reduction in the length of columns of this building due to wall loads was calculated, and pressure relieving joints were provided at intervals varying from one to three stories. It is interesting to note that although the steel columns have compressed to the full extent that was anticipated, there has been no cracking or spalling of stone work. The pressure relieving joints consisted of two layers of sheet lead with a corrugated lead filler between.

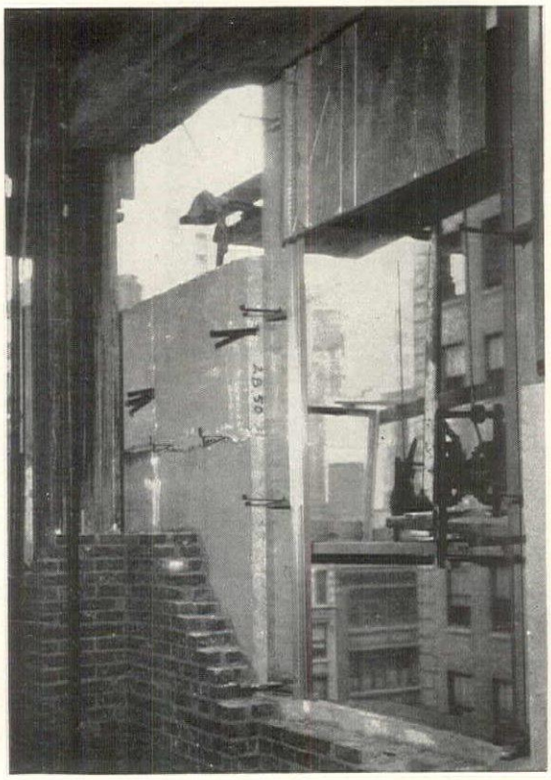


Metal trim head and spandrel anchored to structural steel spandrel beams by an adjustable steel bracket

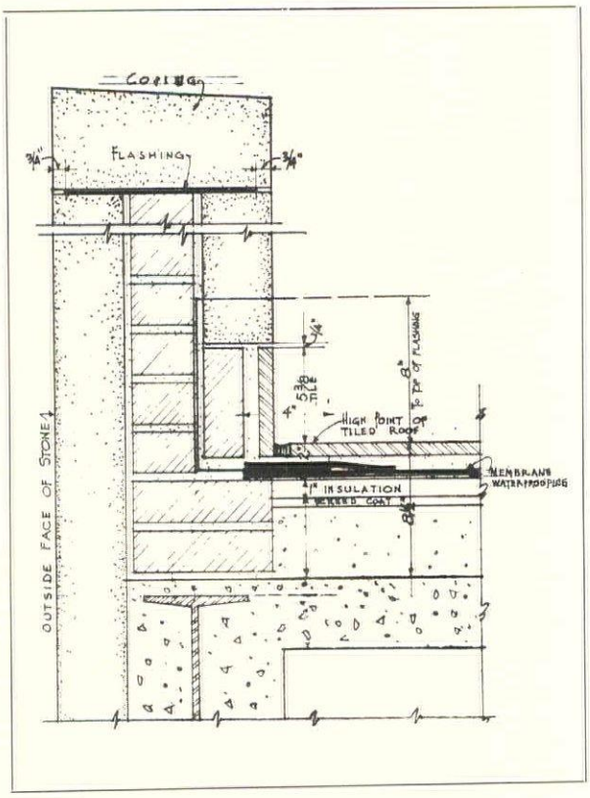


A close-up view of the brackets anchoring the trim and spandrel to the floor beams. See text opposite

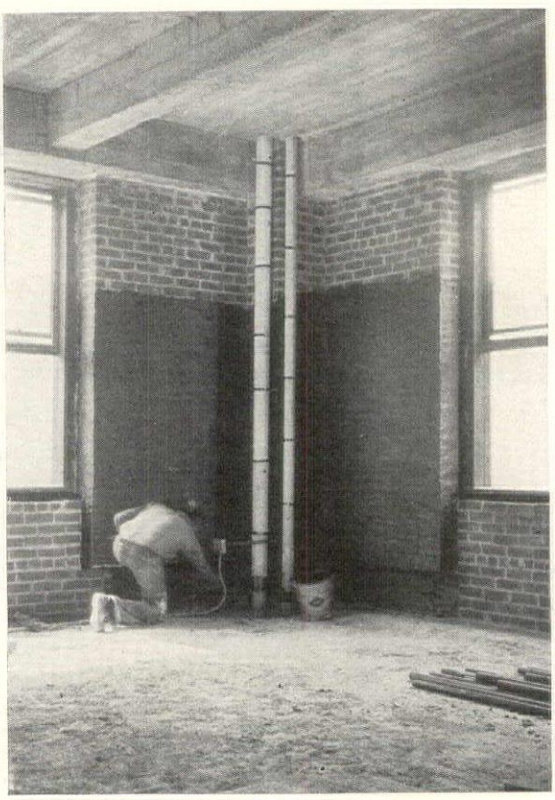
The one-piece aluminum spandrel facings, together with the side spacing of horizontal joints in the stone facing (four stone courses per story) and the almost total elimination of vertical stone joints, rendered spandrel waterproofing unnecessary. Wall dampproofing might also have been omitted, but as an added precaution a trowel coat of mastic was applied on all exterior rough wall surfaces, except on the brick backing of metal spandrels.



Detail of assembly of window-spandrel-wall system. See Architectural Forum p. 99, July, 1930



Section showing flashing and roof construction. Cork, built-up roofing and tile form the latter



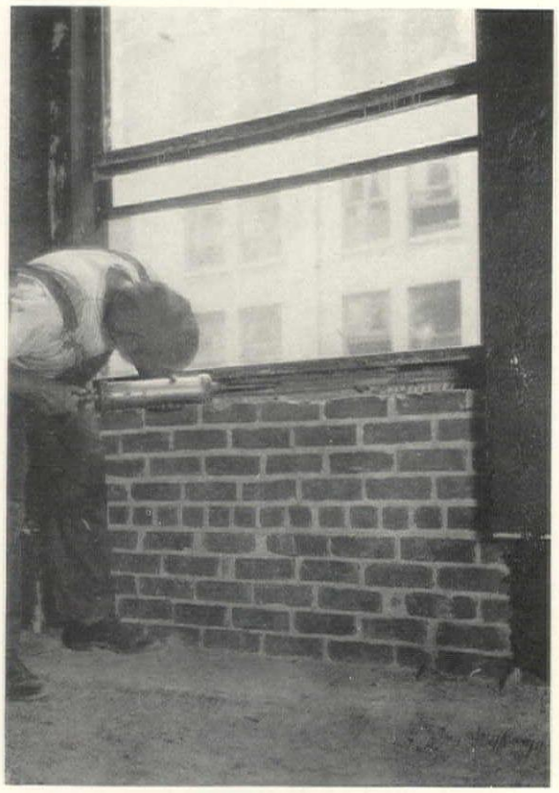
A trowel coat of mastic used for wall dampproofing, except on brick backing of spandrels

ROOFING AND SHEET METAL

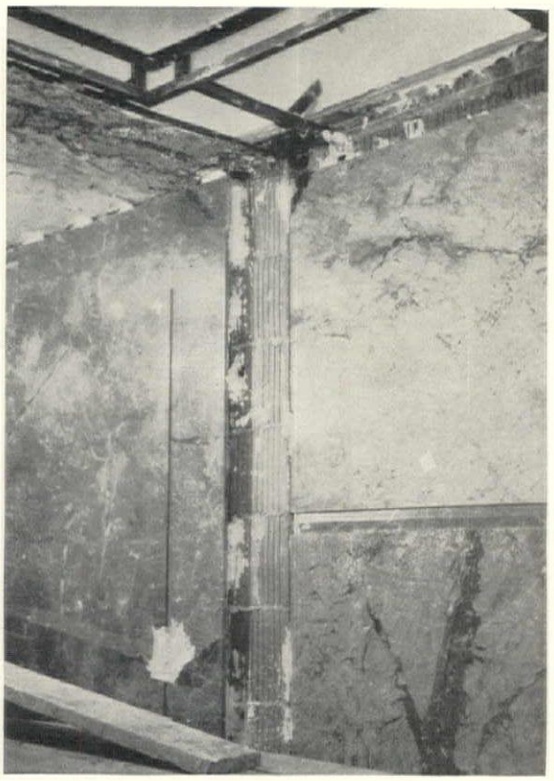
The roofs throughout are covered with cork board insulation 1″ thick, over which is placed a 4-ply high grade built-up roofing followed by 6″ x 9″ vitrified promenade roofing tile. A vitrified tile base, 6″ high, flush with the wall face forms the junction between all walls and roofs. Counter flashings on parapet walls carry through to within 1″ of the outer wall face and on other walls extend entirely through and turn up 1″ on the interior face. Base flashings extend onto the felt 4″ and 8″ vertically above the finished roof surface. All copings and other stones having exposed top joints have interlocking flashings built into the horizontal joint below, extending through the wall to within 1″ of each face. All flashings are of 16 oz. copper and are concealed, except the flashings in connection with aluminum.

CEMENT FINISH

The finished floors, except in entrance hall, corridors, elevator lobbies, toilets, et cetera, are of cement, laid and scored in the usual manner; a special covering laid over the finished floor surfaces was used as protection and to insure proper curing. It was the general opinion of the group in authority that much of the crazing and cracking of cement floors is due to improper curing.



Caulking between sill and top of outside metal spandrel; deeper joints first filled with fibre

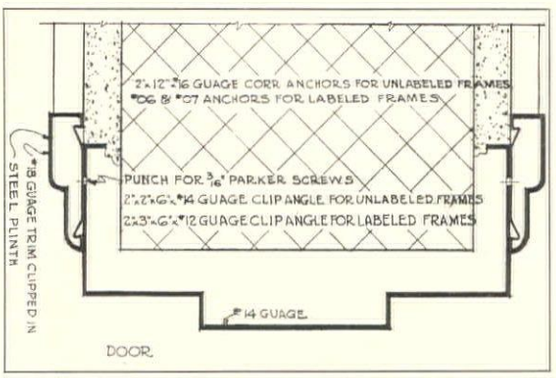


Rose Formosa marble panels and Estrellante trim showing junction of ceiling and light trough

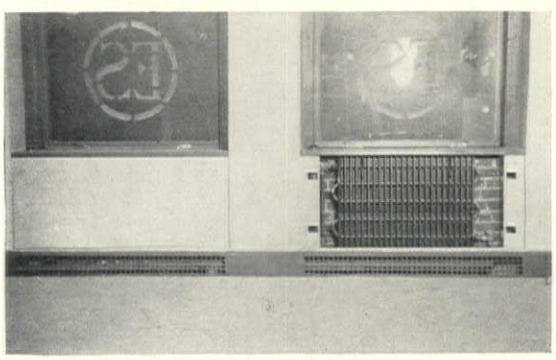
The usual practice of covering with sawdust or wood shavings, while satisfactory in theory, has not produced results. The floors were, accordingly, liberally sprinkled with water as soon as practical after finishing and then covered with a heavy prepared roofing—lapped and cemented at side and end joints. This covering not only kept the finished surfaces moist for weeks, and so insured proper curing, but also protected against stains and other damage. In addition to this protection an integral color and hardener was used in cement treads, platforms and landings. The treads and platforms were also reinforced with a woven wire mesh. In general floor areas the floor finish was similarly reinforced where underfloor ducts or banks of electric conduits occur.

HOLLOW METAL

Steel bucks, frames, trim and hollow steel doors have been used for all interior openings except on the first floor. The buck and frame is combined, using No. 14 gauge steel with a No. 18 gauge steel moulding clipped on. This arrangement retained the advantages of the usual combination buck, frame and trim, and at the same time achieved a finished result practically equal to the more costly cabinet trim that is being used extensively in such work today.



Detail of steel combination buck and frame, held to be a saving over usual buck, frame and trim



Radiator concealed in the wall thickness, occupies 6", is shielded by imbedded metal front

Above, last side plate of chrome-steel ready for bolting on dome of mooring mast. See text opposite for complete description. Below, the observation level, just under the dome, showing the wind indicator on top and porthole for beacon. The observation floor level is enclosed in glass, and above is a platform with a chrome-steel parapet

MOORING MAST

The general problems involved in the design and construction of the mooring mast have been discussed by Mr. Clavan in a previous article. There were, however, a few problems involved in the choice of the materials which may be of interest.

It was desirable that the outer covering be light in weight, relatively easy to fabricate and erect, able to resist the action of wind and rain, and capable of some variation in color. Aluminum was finally selected as the material most nearly fulfilling these requirements; the design was worked out in plate, cast and extruded sections, relieved with trim of polished chrome-nickel steel and panels of glass.

The color of the aluminum plate and aluminum castings, which form the major part of the covering, was obtained by "dust" blasting, this method being used in preference to "de-plating" so that, if desired, surfaces could be retouched after the erection had been completed.

Rolled plate was used for the covering up to the base of the "wings." Joints were covered with battens drawn up against elastic cement by means of screws through the face, and the entire assembly securely anchored to the structural steel frame.

From the base of the "wings" upward cast aluminum was used. The castings are in large sections, some of them 58 square feet in area, cast with flanged joints. These flanges are buttered with elastic cement, bolted together on the back, and in turn secured to anchors attached to the structural steel.

The selection of glass for the horizontal panels in the lower section and vertical panels on the four sides between the "wings" presented an unusual problem. It is intended to illuminate these panels at night, by means of lights and reflectors back of the glass. It was desired however, to have the glass appear approximately white, during daylight. A model frame was erected above the 86th floor coping, and experiments were conducted using lamps of different wattages and many types of glass. Finally a ribbed wired glass was selected for the horizontal panels, and a polished glass with an acid ground surface on one side for the vertical panels.

Fireproofing of structural steel was not required above the base of the wings. It was, however, considered desirable to avoid the necessity of repainting frequently the structural steel. Investigation indicated that a practically permanent protection could be obtained by spraying all the steel surfaces with asphalt emulsion followed by dry Portland cement. This method was adopted and extended to include the steel anchors and straps securing the aluminum to the steel frame.

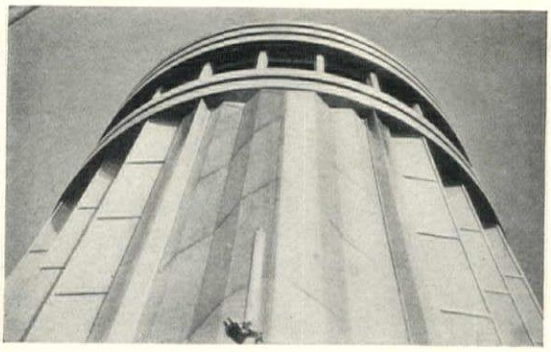
MARBLE

An early decision was made to use marble on the floors and walls of all first floor entrance halls, corridors and elevator lobbies, and on the walls of lobbies and corridors above the first floor. It was not until the builders endeavored to buy this material that the problems involved in this selection became fully apparent.

Hauteville marble with dark base and trim was chosen for the work above the first floor, but since the minimum fixed requirements called for 28,000 cubic feet and possible sub-dividing corridors of 10,000 cubic feet additional, it soon became apparent that the Hauteville quarries could not supply sufficient stock to keep up with the construction program. The choice was finally extended to include Rocheron which has somewhat the same characteristics. Cardiff Green marble and Westfield were used for the dark base and trim.

On the first floor the problem was entirely different and much more difficult of solution. The design called for a black base with a highly decorative marble of two tones above.

All of the contractors and importers of marble in New York were invited to assist. A very satisfactory selection was finally made, on what appeared to be a conservative delivery schedule, but before any commitment was made the architects requested the builders to send a representative to Europe to visit England, France and Germany and check the output of the quarries. The wisdom of this was apparent when word arrived that the marbles selected could not possibly be laid down in New York in sufficient time to meet the building needs.

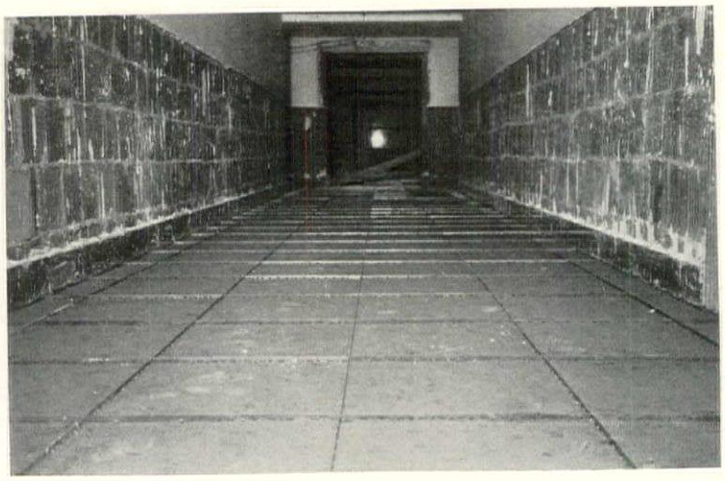


Aluminum and polished glass with acid ground surface used in vertical panels of the mast

The horizontal ribbed wire glass panels being installed in the section directly below the wings

The final selection, made after confirmation as to output of the quarries, was Belgian Black base surmounted by a colorful combination of Estrellante and Rose Famosa.

Colorful marbles are invariably unsound and consequently difficult to cut, transport and set. On the Empire State Building, it was felt that the unusual height of the marble wall facing, some of which extends through three stories, demanded that every precaution be taken to insure permanency. It was accordingly decided to line completely the back of all Estrellante and Rose Formosa



Brass expansion strips, No. 12 gauge metal instead of usual No. 20 embedded in floor fill ready for terrazzo

marble facing with an absolutely sound material. Ozark Missouri Gray marble 7/8" thick was accordingly secured, with German cement, to the back of each piece of wall facing, and the double thick material set and anchored in the usual manner. The floor of these halls and corridors consists of a combination of Belgian Black, Levanto and Bois Jourdan, set with 3/16" thick nickel silver strips in all joints. The floors of the corridors and lobbies above the first floor are of terrazzo with brass division strips; these strips, however, are of No. 12 gauge metal instead of the usual No. 20.

ARCHITECTURAL METALS

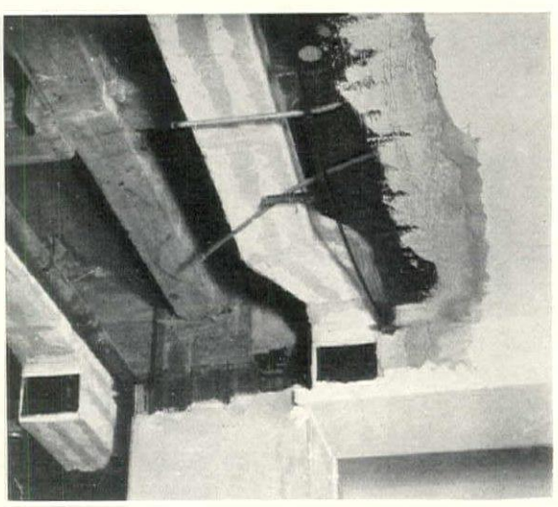
All of the first floor architectural metal work, which includes all building entrance doors and frames, show windows, exterior and interior shop entrances, and doors to elevators, was executed in polished aluminum with bronze, inlaid or applied. It was decided to adhere to the aluminum alloy previously selected for the spandrels since this mixture was suitable for practically all methods of fabrication. Sample sections of aluminum with bronze inlaid and applied, were subjected to salt spray tests in order to study the action between these dissimilar metals. It was found that a film of Bitumastic enamel, cadmium plating or spar varnish interposed between the two metals was effective in preventing corrosive action. All aluminum and bronze surfaces in contact with each other were, therefore, coated before assembly with one of these materials, the choice depending upon the ease of application.

GRANITE

A highly polished black material was desired as a base and trim at the building entrances, below show windows, and as a background for shop tenants' signs. Polished black granite was considered preferable to marble, and accordingly an exhaustive canvass was made of all possible sources of supply. The quantity and the time in which the material was required, together with the sizes desired, led to the selection of Swedish granite as the most suitable.

All the materials used, in every part of the structure, represent the final choice of the group described at the beginning of this article as a technical board. The realization of the amazingly rapid construction record, resulting in a completed structure scarcely twelve months after the setting of the first steel columns, is conclusive evidence of most unusual effectiveness of this combination of owner, architect and builder.

The specifications setting forth material requirements and methods of construction followed the New York Building Congress recommendations, and were set up in two parts, A and B. The New York Building Congress Standard Specification, Part B, was used throughout, except for special materials for which the Congress has not yet issued a standard specification.



Section of ceiling showing concrete arch, asbestos covered ducts, metal lath and plaster coats

OUR EXPANDING VOCABULARY

WHAT SHALL WE DO WITH IT?

The accompanying paragraphs are from an address delivered recently in Chicago, at a meeting of the Producers Council

BY

LOUIS LA BEAUME

MEMBERS of the Producers Council, The Architects Club, The Chicago Chapter, and the Illinois Society of Architects, and any other distinguished guests who may be present! ! It will be well to remember just where the responsibility for this party lies. The responsibility for your peace of mind, and body, rests with our hosts, the producers, who by their own confession have raised the standards of living in America to such dizzy heights. This dinner is but a by-product of their beneficence, and by no means indicates even faintly what they *can* do. Tonight we look upon them as men, almost as brothers; but tomorrow we shall recall them as symbols of those mighty forces which are deluging this continent, and the fringes of others, with an unending torrent of the products of human and mechanical ingenuity. Apparently they never sleep; so fascinated are they by the limitless contents of Pandora's Box, the key to which they have thrown away. And like all insomniacs, they like company; and as these producers are producing what are currently called building materials they like to wile away their wakefulness by talking to architects. They think that they are doing a service to the architect by keeping him awake also. They don't want him to dream his days away, as the lazy fellow would like. They want him to be up and doing—something with their products.

ONE SUBJECT DISCARDED

I don't know just why they aren't monopolizing the talking tonight; and I was inclined to give them credit for some smoldering sense of fair play when Mr. Buchroeder offered to let me speak if I insisted on it. However, when Mr. Maynard suggested a subject for me, I suspected a nigger in the wood pile—or rather in the steel, or asbestos pile, (very few members of the Producers Council think much of a good old fashioned material like wood). Mr. Maynard was very subtle about it. He insinuated that I might talk interestingly about "Modern Materials and Le Style Moderne." He didn't say the "Modern Style"—that wouldn't be fancy enough for the advertising fellows. "Le Style Moderne" sounds more intriguing. But I just couldn't do it, and told him so. When I looked down the membership list of the Producers Council, and realized how much money the good old Common Brick Manufacturers Association has spent trying to inspire us with those quaint dilapidated English effects; how the Georgia Marble Company had tried to make every architect in America feel like another Phidias; how helpful David Lupton's Boys (I don't know whether there are five or six of them) had been in imbuing us with the true spirit of the Cotswolds—it just didn't seem right, somehow.

Moreover, I figured I'd feel a little foolish—talking about windowless buildings, those unfledged chicks of "Le Style Moderne," before the militant representatives of the weatherstrip industry who had chipped in to pay for my dinner.

ANOTHER SUBJECT ACCEPTED

An architect should above all else be fair; and I am proud to be able to state (without mentioning any names) that there are not only a good many fair architects scattered throughout the country, but possibly some even here in Chicago. It would mortify them very much to have one of their number commit a breach of tact, either by appearing to condemn or condone the activities of any producer. The field of narrow partisanship we must leave to the producers themselves. It is their business to exalt the advantages of their own products to the exclusion of all others. So I have been constrained to reject Mr. Maynard's title, and have chosen for my text a broader subject indicated by the phrase "Our Expanding Vocabulary."

You might conclude at first blush that this resounding phrase carried an implication of rejoicing; but blushing again, and glancing at the

subtitle, "What Shall We Do With It?" you may realize a faint suggestion of despair. My fellow architects will be quick to acknowledge the multiplication of their difficulties, consequent to the expansion of their vocabulary. But, of course, you producers, who are compiling our huge, unabridged, unexpurgated, and annually swelling dictionary, are convinced that you are engaged in a noble work.

ACCUMULATION OF WORDS

As a source of reference, an exhaustive lexicon possesses incalculable value. To the curious, its pages afford unending hours of fascinating, even of morbid study. Unpleasant people, with a mania for correct spelling and a taste for occult pronunciations, find in a dictionary authority with which to confute and embarrass their more amiable betters. And, finally, the literary craftsman may use the dictionary as a quarry, or a grab-bag, from which to pick forth some nugget to make his prose glisten, if not like gold, at least like gilt or tinsel, or, stainless steel. So none of us can really decry the dictionary or its usefulness. The most we can do is to shudder, and feel appalled at its ever increasing bulk.

Time was when we got along pretty well by means of the sign language; courted, proposed, were accepted, wed—and even fed by means of it. Yet I am no such reactionary as to wish to turn back the hands of the clock that far. I can sense the painful processes by which the structure of language has been built up; and am sincerely respectful of its value—whether as an instrument for the expression of ideas, or, as Talleyrand regarded it, as a means for the concealment of truth.

THE ARCHITECTS' VOCABULARY

It is banal to say that words are the raw materials of the poet's art. It is no less banal to say that stone and steel, copper and glass, and all the multifarious knick-knacks which you producers control, or create, or synthesize are the raw materials of the architect's art. The poet's vocabulary consists of words. The vocabulary of the architect consists of building materials, and an increasing number of alloys, amalgams, devices, and patented contraptions. Let us leave the poet for a while to his simple art of choosing, with fine instinct and discretion, just those few right words which may make his song a thing of beauty and a joy forever. We must wrestle with a mightier problem than his, for we are caught in the mad whirl of progress. No salesman knocks at the poet's door to sell him a new word—a word spelled in the phonetic manner. Progress passes him by, and concentrates all its fury on us.

It is vain for us as architects to pine for the dear dead days that are gone, as it would be vain for our children to lament the fact that geography is a tougher science now than it was in the days of Columbus because there is so much more of it. And yet, we would be less than human not to fret a little, and to question now and then the blessedness of the riches spread out for our using. We wince, but we try to go bravely on; and I know the obligation of a guest well enough not to cast any specific aspersions on the business of my hosts. We architects know that it takes a lot of nerve for you producers to offer us some of the things you make, and we want you to know that it takes a good deal of nerve for us as architects to specify them. A glance about any of our American cities today will give sufficient proof of both your and our temerity.

RAPIDITY OF CHANGE

What we have done with our expanding vocabulary stands (at least temporarily) for all men to see. What more we may do is the phantasm before which we, as well as all other men, shrink. Just now we are told that we hang upon the brink of change, and that the revelations of yesterday are as nothing to the revelations of tomorrow; that the inventions of tomorrow will mark the obsolescence of today. So it has ever been; but formerly our yesterdays were longer, and our tomorrows seemed further in the future. The perfection which we wooed seemed more static, more Junoesque than the jazz-mad sprite she now appears.

Architecture is a venerable art. Slowly and painfully it has developed through the ages from the first rude shelters of primitive man's devising. Sticks and stones, mud, and the boughs of trees, these formed the vocabulary, or the palette, if you choose to put it that way, or the materials of the early artificers. Bigger sticks, heavier stones, finer mud, baked and moulded, stalks of sugar cane, gypsum (mud or stone), lime, cement, and a few metals are still the primary elements of the architect's vocabulary. Looking backward across the centuries we are amazed at the masterpieces which have been formed out of four or five simple materials. For how many thousand years we do not know, there were no others. Glass came comparatively late and wrought magical changes, though these may have been only the premonitions of still more magical ones to come. We need only to look backward across half a century to realize how Chaucerian our vocabulary was, compared with its Elizabethan, or rather its Hooverian effulgence today. And yet, as Edmond Spenser and Geoffrey Chaucer were no mean poets even when measured by the mighty Shakespeare,—working with his more flexible medium,—so too, I make bold to say, were

Phidias, Brunelleschi, and Christopher Wren no mean architects measured even by the shadow of the Empire State or the Palmolive Buildings —or by the accomplishments of a Frank Lloyd Wright, a le Corbusier, a Gropius, a Hood, or a Holabird.

THE ESSENTIAL INGREDIENT

For it matters not how few, or how many, colors a painter may use so long as they are blended and mixed with his own life's blood. Nor does it matter much how few, or how many, are the component elements in a work of architecture so long as they are compounded together with taste, discretion, integrity, and passion. But does it require a finer taste, a rarer skill, a surer integrity to thread one's way through the mazes of our contemporary architectural vocabulary, than was required of our fathers to pick their way through their primitive primers? That's a deep esthetic question; but if you want an offhand answer, I'll say it does.

"WHAT'S NOT IN A NAME?"

In the first place the very nomenclature of their materials was simpler. Stone was stone not sheet rock, or gall-stone or carey-stone or peach stone; and oak was oak and nothing else. Lead was lead and not barytes. Slate was something God made, not something cooked in a still like homebrew. Paint was a generic term which everybody understood, not something ending in ex like sex. I have referred to Shakespeare as a competent poet, but I guess he wasn't much of an advertising man. He asked "What's in a name?"—and said "A rose by any other name would smell as sweet." He fumbled that one. Perhaps like Homer he was nodding, at any rate he was far too conservative. You producers say, and perhaps you are right, "A building material by any other name than its right one will sound better." You seem to say too that "A building material that looks like some other building material looks better than when it looks like itself." At any rate, while you are bragging about metal, you call our attention to the skillful graining that makes it look like wood. You have quite a genius for imitating wood. Of course, you don't try to deceive us. We're friends; you let us into the secret—but who are you trying to deceive? The tricks of Thurston are child's play compared to the illusions you perform. I don't know whether marble, in that geologic age when it was soft, looked like rubber—but I've seen rubber that looked as much like marble as a horse-thief used to look like a deacon. I've seen sawdust that looked like travertine—clay that looked like granite—asbestos that looked like slate; all kinds of samples that look like a million dollars and a good many really honorable materials that looked like Hell.

Of course, masquerade parties are a lot of fun; but really, gentlemen, you keep us running around with our tongues hanging out. Truly, as producers, your ingenuity is beyond praise. You have made it possible for us as architects to achieve the most absurd and fantastic results. And your ingenuity is only surpassed by your fecundity. The spawning of the fishes is not more lavish than the spawning of your laboratories; and every little egg you lay has a trade-mark all its own. When we were younger, we used to marvel at the genius which christened the Pullman cars. That was back in the days of the underhand pitch, before the curved ball, to say nothing of the "spitter," had been invented; when life was really simple. Pullman cars have multiplied, but the naming of them no longer impresses us as such a great feat. With your trade-marks however, the case is different. They call for imagination of the highest order, an ear for euphony, a weird sense of the bizarre, an unerring intuition of the extent of human credulity, an enthusiasm for phonetic spelling, a passion for punch, and some other qualities that I am too polite to mention. In an incredibly short space of time you have enlarged the glossary of building terms a thousand-fold, and handed it to us.

THE ART OF NAMING

One cardinal virtue characterizes all or nearly all of the terms you have concocted; the virtue of brevity. Most of your trade names look like cable addresses—so tense, so suggestive, so compact of the very essence of the product are they. Many of them are so reassuring, so finally right, that it would seem but inevitable that they should find their way into every sound specification. What client could ask for a better shingle than one called Fittite, unless he might be the client who asks for Weatherbest. They both *sound* fine and dandy, and no doubt they are. A product called No-void, or Ferro-bord, or Whalebonite, or Wonderlac, or Titelock, or Koverfloor, or Sunflex must sound to a harassed soul like an answer to prayer. And while I haven't been subsidized to mention the American-Enameled Brick Company, their Am-En brick sounds like the last word in a reverent plea for beauty. But, of course, you can't expect to find all the terms that sound fine in the same specification.

TOO MUCH GOODNESS

That's what is meant by the phrase "an embarrassment of riches." How can one choose between ideals? I love a Never-Split Seat, but I love a

Sani-Seat no less; and when I come to a door—I am palsied and unable to speak—for comparisons between such superlatives as Miracle, Klimax, and Kemi-Sealed, are too odious to bear. Many architects must feel the way I do; which accounts perhaps for those cabalistic words "or equal." They are not so meaningless as they sound for when a man specifies an "Eternit roof or equal" what can he mean other than that he wants a roof which will last through all eternity?

AN INDEFINABLE ART

Many people have attempted to define architecture as succinctly as you have defined some of the products which go to make a perfect building; but no one has succeeded. We all know that a work of architecture must combine the elements of usefulness and beauty; but we can't think of just the right short and snappy word to cover the case. Perhaps it's just as well. Perhaps architecture should remain the nebulous thing it is; a complex of steel and glass, of cement and stone, and insulating fibres; shot through with wires and pipes, an organism like man himself created, not only for material ends, but for some higher purpose.

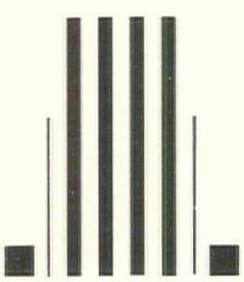
As man develops in character so will his architecture. Just now, it seems to me, man's life is complicated as it never has been before. Science tantalizes him, piques his curiosity, promises him incalculable beneficences. The new knowledge of the past fifty years has gone to our heads like wine. We are faced with the terrific problem of using that knowledge intelligently, for the intelligent use of knowledge is even more important than knowledge itself. The truths that science reveals to us are marvelous; the things you produce may be excellent each in its proper place. The vocabulary you offer us is unlimited in its possibilities, but the use we make of it will be the ultimate test of its value.

Our humanity is on trial no less than your materials and our skill are on trial. It is true that we are compounding and evolving a modern architecture as our ancestors have always done in their own necessity. But let us remember that we are men like them. We breathe and bleed, we love and aspire, we hunger and thirst much as they did. We are formed of tissues and juices; our bones are calcide and marrow; nor are our ribs of steel rolled into standard shapes.

THE QUESTION SURVIVES

Much of our so-called modern architecture—"Le Style Moderne," slick and smooth, shiny and sanitary as it may be, would seem to forebode a race of Robots; a race of metal men and women, with roller bearings, set in motion by a key or switch, lubricated by means of a can, dripping Texaco—or Socony or Mobiloil—instead of salty tears, or good old human sweat. Such a race is conceivable, such an architecture is possible, so great are the potentialities of our mechanical prowess. I realize that I have not answered the questions which I have raised. "What shall we do with the machine and its products?" "What shall we do with our expanding vocabulary?" I have only indicated perhaps the confusion in which we are caught as we struggle with the building of our modern Towers of Babel—and I am sure as my words continue to pour forth that you will heartily agree with the statement that "Silence is golden." No, I am not sure, for there must be some among you who are struggling with the problem of acoustics. Maybe silence, even golden silence, is outmoded, and you feel that in these days of loud speakers and radios, no sound is so trivial, no noise so hideous or inapt that we can afford to lose it. The science that would conserve all unimportant sound is building up a vocabulary all its own. As yet the A's seem to be the lead. I mean in the majority; for who am I to make a choice among such master-mouthfuls as Acoustex — Acoustone — Rockoustile — Conico — Acoustolith — Sabinite —Acousticelotexico, and Ar-Ke-Tex?

But, gentlemen, let us remember, if we must go on producing, if we must go on designing, if we must speak, that "Words fitly spoken are like apples of gold framed in pictures of silver."



WALLS OF STEEL FOR SECURITY

The detention quarters of the Cuyahoga County Criminal Court Building in Cleveland, Ohio, planned by Warner and Mitchell, Architects, illustrate an admirable use of materials. The cell blocks are good examples of planning for economy of space, construction and maintenance.

THE correlation of the detention quarters of the Cuyahoga County Criminal Court Building is the result of a series of critical surveys which embraced the causes and effects of crime, rationalized the psychological study of criminal tendencies, and established a new standard for the confinement and segregation of delinquents. The hypothesis that everyone is potentially a criminal, but that no two individuals react emotionally in the same manner is the basis of the new standard. The detention quarters in this building have been planned to provide practically for this variance by establishing a method of segregating inmates according to experience and to types of criminal delinquency. Once evolved, the plan determined the method of assuring confinement. Space economy, lowered maintenance and reduced per-prisoner cost of construction are, to a marked degree, the results of this modern scheme.

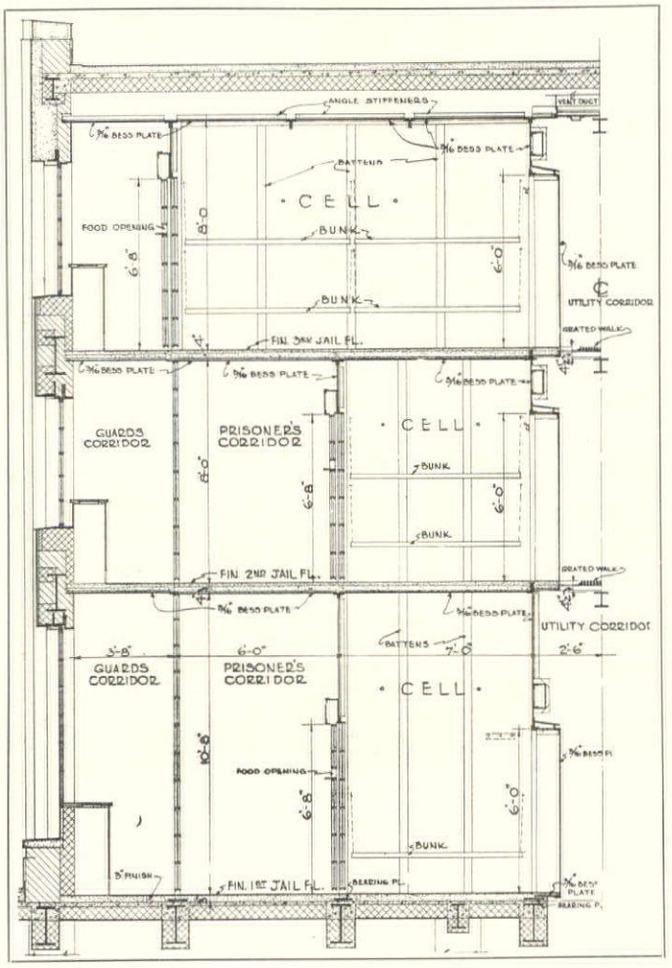
The building now provides for 27 classes of inmate segregation and 8 different types of confinement, with a total capacity of 525 prisoners. The addition of future cell blocks will increase the segregations to 31 and the capacity to 658. In general a day room system has been employed. Each cell block contains its own day room in addition to the cells. Here the inmates read, write, converse and are fed. The system places them on a probationary or honor basis and allows them comparative freedom within a prescribed area and thereby improves the social conditions among them. Alimony cases, witnesses and first offenders are confined in small plastered rooms while dangerous prisoners are confined in individual cells.

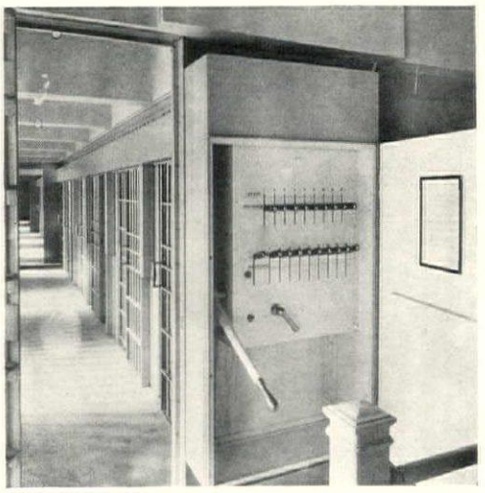
The following list explains the disposition of the various classes of prisoners. There are 13 detention cells, 68 single cells, 28 four person cells, 18 six person cells, 12 eight person cells, 36 rooms for first offenders, space for 65 probate cases and 27 hospital beds. (Two person cells are not used for moral reasons and odd numbers per cell are avoided for reasons of economy.) On the eighth floor there are two large two-story rooms now used as dormitories which can be converted into cell blocks if the need arises. Sixteen day rooms and four exercise courts complete the layout of the detention quarters.

White Studio

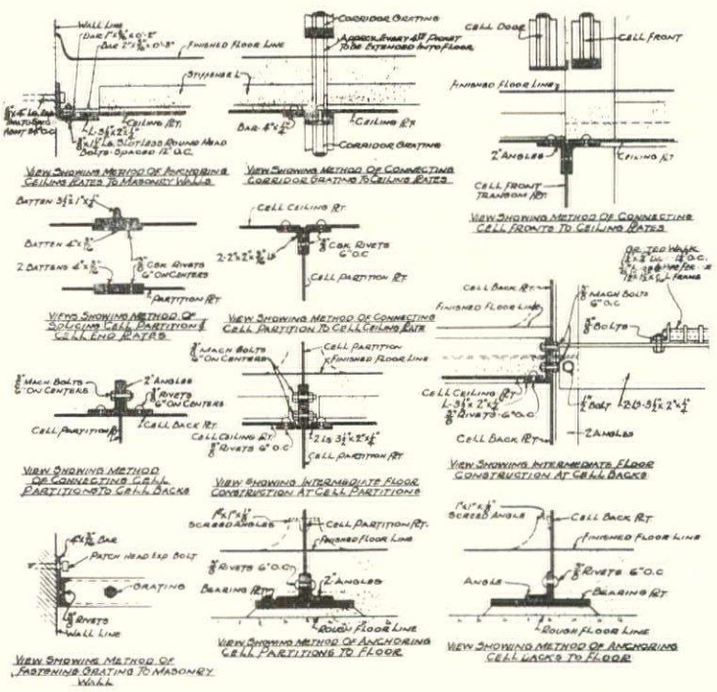
An exercise court

The ten upper floors of the building are devoted to the jail and detention groups. The fourth floor or first jail level contains, in its west wing, the booking, search and delousing facilities, detention cells, attorneys' consultation rooms and detectives' viewing room. The center and front portions of this floor are occupied by the sheriff and his assistants. The north and south wings contain cell blocks and four exercise courts to which prisoners may be taken for air and sunshine and at the same time be securely confined. The exercise courts are enclosed by impenetrable walls 13 feet high with steel bar and heavy wire mesh grating over the top. Different types of cell blocks, including single cells, four, six or eight person cells, alimony cases, witnesses and male first offenders occupy the remaining space on this floor. The fifth and sixth floors contain additional units of the same general character; the seventh floor is reserved for future cells and a small laundry for female prisoners and the eighth floor is devoted to hospital wards, operating and sterilization rooms, doctors' and nurses' offices, etc. The kitchen and its services are located on the ninth floor and the tenth is at present virtually an open exercise court, but

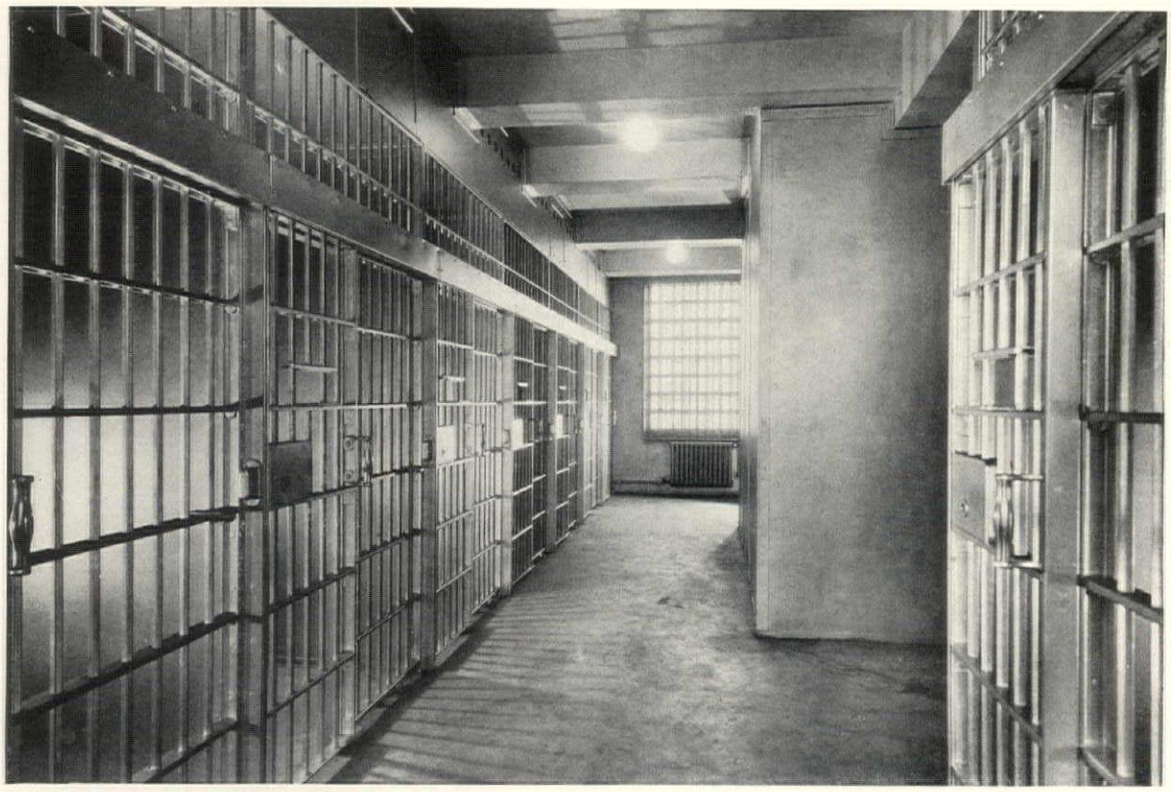




Above is a view of a typical guard's corridor, showing the locking device by which any door in the cell row may be opened, closed, and locked at will in either position. The section at the left is through a series of jail floors and shows the location of the various corridors, the cells themselves and the general type of construction



Details showing various methods of jail construction. In general they are similar to the system employed in battledeck structures, although in this case, steel is used as a finish material as well as a structural one. The steel floor of one tier of cells forms the finished ceiling of the cells below; the finished floors being concrete in which the cell partitions are imbedded. Most of the steel is Bessemer plate, 3/16" thick, but openings, doors, etc., are protected by tool proof steel to resist attack. Rivets are countersunk, flush with the surface of the steel



White Studio

Bull pen detention cells on the first jail floor

with care for additional cells in the future. Special elevators connect all of the jail departments to the receiving station on the ground floor.

A typical cell block consists of a visitor's lobby, safety vestibule, guards' corridor (inaccessible from any other), prisoners' corridor connecting the cells with the day room, utility corridor and the cells proper. In the morning the prisoners are transferred from their cells to the common room where they spend the day. This allows the attendants to inspect and clean the cells, the day room being serviced at night after the prisoners have been returned to their cells. The mechanical, manually operated locking device, located in the safety vestibule, is so constructed that any door, all doors, or any combination of doors may be opened, closed, and locked either open or shut, at will from the control box.

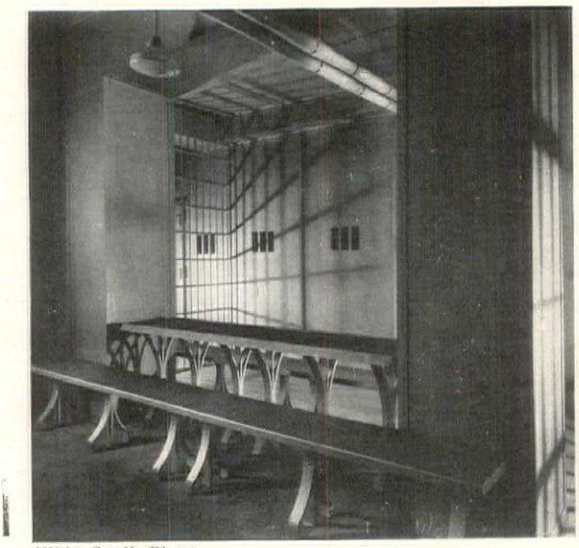
Utility corridors at the backs of the cell blocks have grating cat walks constructed of flat steel bars laid on edge and are, in effect, shafts through which foul air is exhausted from adjacent cells. They allow mechanics to gain access to all utilities including plumbing and electrical outlets and yet permit no contact with any prisoner.

Steel, brick, cement and glass were combined in the construction of the jail and detention section of the building in a manner which makes it practically "escape proof." These materials were selected primarily because of their utilitarian and economical qualities. The cell blocks are three tiers high and are structures within themselves. They present a trussed, riveted and interlocked mass of plates, angles, bars and other steel shapes as required, each tier supporting the one above it, the weight of the whole mass being carried to the foundations by interior columns.

The cell construction is such that a practically smooth, uninterrupted steel wall and ceiling surface is attained. All rivet heads are countersunk flush with wall and ceiling plate surfaces. The lavatory recess in each cell has rounded corners; and lavatory and toilet fixtures are push-button controlled. Bunks are constructed of angle sections and inter-woven flat bands of No. 18, 1″ wide steel, riveted at each end to the angles to form a 4″ x 4″ mesh. The bunks are hinged and may be folded up out of the way when not in use.

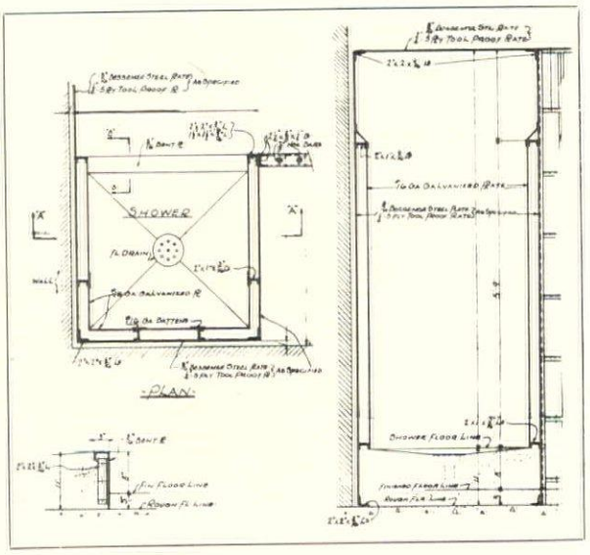
All main cell fronts are composed of ⅞″ hexagonal vertical bars 4″ on center which intersect 2¼″ x ¼″ x ⅝″ channel bar horizontals. The cell fronts are riveted to the steel plates at the ceiling and the bottom end of every third or fourth bar extends through the finish cement floor and is connected to a steel plate anchored into the concrete.

The prisoners' only contact with outsiders is a visible and audible one, made possible by a specially constructed "audible window." A sheet of ⅜″ thick, non-shatterable glass, removable only from the corridor side is used in these openings



White Studio Photos

A steel lined day room



Shower stall details

and is held rigidly in place by bronze clips. An air space between the glass and the steel frame, thus created, permits conversation between prisoners and visitors. This arrangement was devised to prevent passage of narcotics or tools.

Light boxes, for the illumination of the main cells, are mounted behind the back wall of the cells in the utility corridor. The cell sides of the light boxes are covered with lenses of wire glass, securely fastened from behind so that they cannot be removed by prisoners.

Day room furniture and benches in the shower rooms are made of heavy steel plate, and angle sections are securely anchored to the floor or riveted to the cell walls.

A steam system supplies the heat for the building, and univents have been installed under the windows in the guards' corridors as the major part of the ventilating system. Exhaust fans at the roof above the utility corridors remove foul air. Wherever a vent occurs, it is protected by toolproof steel plate, pierced to form a grille.

One of the two open-air courts on the first jail floor

SUPERVISION OF CONSTRUCTION OPERATIONS

BY

WILFRED W. BEACH

CHAPTER 26—PAINTING AND VARNISHING (Continued)

VARIOUS inert carriers ("extenders") are to be found in ready-mixed paints, some of which may add to their excellence, some merely conduce to cheapness. Among the extenders are gypsum, silica, certain silicates, diatomaceous earth (pulverized shells), fuller's earth (china clay or kaolin), whiting, asbestine, permanent white, talc, etc. Since it would be extremely difficult for a superintendent to determine which or what percentages of these are incorporated in a given paint, and whether such admixture improves or merely tends to cheapen the product, the specification writer can only beg the question and, if he specifies a ready-mixed paint, be guided by previous experience or by the general reputation of the maker. The advantage in either case is that he should thereby get what he wants without depending upon his own knowledge of what constituents make the best paint, or how they should be combined. There is the further advantage of machine-mixed paint over that mixed by hand; that the latter can never be as thorough.

STANDARD FOR PRIMING COAT

However, for the superintendent who needs a primary education in the mixing of paint "on the job;" standard specifications for exterior priming coater (suitable also for inside work) call for a composition containing 25 to 30 per cent of white lead paste, 60 to 65 per cent of raw linseed oil, and 10 to 12½ per cent of turpentine; for succeeding exterior coats, about 20 per cent of white lead paste, 10 per cent of zinc white paste, 65 per cent of raw linseed oil, and 5 per cent of turpentine. In cold weather, the painter slightly increases the ratio of turpentine to oil, or adds a small amount of japan drier, about ½ pint per gallon of oil. The foregoing is for white paint. If other pigments are introduced (in other than the priming coat), the percentages of lead and zinc are diminished accordingly, the ratio between the solid and the vehicle remaining as stated. Here no account has been taken of the introduction of extenders, since these are rarely mentioned in such a specification; though they and the machine-mixing are the chief reasons that a painter can buy a good ready-mixed paint cheaper than he can mix it himself. "It is practically impossible to get a perfectly smooth paint by hand mixing." Extenders or inert carriers figure more or less in all proprietary (ready-mixed) paints, the formulæ for which are presumably trade secrets, jealously guarded. As an example, however, of a specification for a paint containing an extender, we have that of the War Department for "Exterior Cantonment Paint," which calls for 64 per cent pigment and 36 per cent liquid; the pigment consisting of 42 per cent white lead, 33 per cent zinc oxide and 25 per cent of combined tints and silicates (aluminum or magnesium); the liquid to be 20 per cent raw linseed oil, 40 per cent menhaden or soya-bean oil, and 40 per cent combined drier and volatile mineral spirits. There follows a statement of the chemical composition of the two substitute oils.

Thus, one finds the entire field of paint and varnish information to be a compilation of what ingredients are supposed to produce the best coverings; then the substitutes for these approved ingredients, of every degree of excellence,—and the opposite. We have discussed the basic pigments and their extenders. The scope of coloring pigments embraces the entire gamut of the spectrum, both in oil and water colors (distemper), and all their combinations and permutations, the stock in trade of the master painter. These tinting colors vary greatly in price and degree of excellence; and hence nearly all the good ones are found in competition with cheaper substitutes, some of which fade or change color or affect the paint body, or are otherwise deleterious. One learns by investigation and experience wherein to discriminate. The subject is too vast for detailed treatment in these pages.

LINSEED—THE BEST BINDER

Linseed oil is derived from flaxseed and is marketed as "raw" and "boiled," each of which has its proper place in the paint and varnish industry. This vehicle provides the "binder" which, in hardening, forms a more or less elas-

tic film, the durability of which is the measure of the life of the coating. Linseed oil is recognized as the best of all binders,—also the most expensive. Its hardening is not drying, in the ordinary sense, but, rather, the completion of its oxidization. For this reason, the skin that forms on paint and oil left exposed in open cans should always be removed, never stirred in, as it is not readily solvent. Raw oil is thinner and slower in drying than boiled oil, hence more penetrating when used as a filler on a porous surface. This penetrative quality is increased by heating, in which condition it is an ideal filler for wood floors intended for hard usage, since the hardened film embraces the entire outer surface of the wood to a depth of 1/16 of an inch or more. Raw oil is lighter in color than the boiled, unless the latter is "bleached" (which renders it more extensive and less desirable); therefore the raw is used in all light colored paints. Boiled oil saponifies when exposed to the weather more readily than raw oil, and hence conduces to "chalking" of a paint film, for which reason some makers use raw exclusively for exterior paints. Boiled oil has the advantages of a heavier body, quicker-drying. Linseed oils are of varying degrees of purity and excellence. If his specifications call for the best procurable, the superintendent must make himself a competent judge by securing samples and prices in the local market.

The chief competitor of linseed oil is China wood oil, an extract of Chinese tung nuts. Commercially, this oil is either raw or treated; but its drying features are the reverse of those of linseed, the raw drying too rapidly and with an elastic film; and hence only the treated tung oil is employed in the paint industry. It is much used, in combination with linseed, in making varnish, enamel and cement floor paint. Other vegetable drying oils, more or less used in the manufacture of paint and varnish, are derived from the seeds of hemp, poppies, and sunflowers and the soya bean. Menhaden oil is a fish extract, used in exterior paint because of its good drying and weather-resisting qualities,—and its cheapness. Only odorless menhaden oil should be admitted, if use of fish oil is deemed permissible.

TURPENTINE AS A THINNER

Turpentine (the painter's "turps") has long been the chief of the volatile thinners or solvents, though it is being rapidly superseded by the heavier naphthas, known as "oleum spirits." Turps is obtained from several varieties of coniferous trees throughout the world, our supply being derived largely from the pines of the southeastern states, where the sap or balsam is drained from cuts in the bark, collected and distilled. From this is produced the clear spirit or oil of turpentine and a residue known as rosin. Pine balsam is also found in sawdust, stumps, etc., in sufficient quantity to warrant distillation into a product known as "wood turpentine," which, when properly refined, is considered a permissible substitute for true turps. Unlike linseed oil, turps eventually dries out, evaporates, its function having been to add to the workability and covering capacity of the paint. Other volatile agents are naphtha, ether, alcohol, banana oil, etc. Gasoline and benzene are also used, but are taboo with nearly all architects, though benzine is sometimes permitted for thinning paste filler, for which quick drying is essential. These petroleum and coal tar derivatives are exceedingly inflammable, and their use carefully circumscribed; it is generally legally restricted and also controlled by insurance rules. The use of alcohol as a painter's medium is confined chiefly to shellacs and to shellac varnishes. It may be grain (ethyl), denatured or wood (methyl), or any of these combined, such as the No. 1 standard of the Internal Revenue Department, which consists of 100 gallons of grain alcohol to 5 gallons of approved wood alcohol. The latter varies greatly in quality, and hence its use is not permitted, except as such an adulterant.

TYPES OF DRIERS

A drier (or dryer) is "any substance added to a paint to increase its drying quality. It may be a liquid, such as japan, or a dry material, as oxid of lead, oxid of manganese, burnt umber or sugar of lead." (Century Dictionary). Oil driers in paint are combined with the linseed oil. This is properly done in a heated state, which produces our so-called "boiled oil," though it is not actually *boiled*. If the driers are combined cold, "bunghole oil," an inferior product, is produced.

There are two distinct covering materials in common use, both known as "japan." One, which is properly called "black japan" or "japan lacquer," is a hard black varnish applied to metal, and is derived from asphaltum. Japan, proper, (japan drier) "is a light colored brownish-yellow liquid, of about the consistency of varnish, made by cooking gum shellac with linseed oil in a varnish kettle. Litharge or some similar material is usually added to quicken the drying of the resulting japan. It is cooked down, cooled and thinned with turpentine." (Century Dictionary.) Whereas oil driers are combined in the paint in the making, japan may be introduced at the job, and this is considered admissible, in proper quality and quantity.

From all of which, it can readily be compre-

hended that the various combinations of the foregoing (and other) ingredients may be infinite in number; also that, once a painter starts messing with his materials at the job, no inspector can have definite knowledge of what he is introducing or producing, except as he was limited in the items he was authorized to bring on the premises. There is even a right and a wrong way to stir paint. It should be done with a clean paddle and with but little free oil at a time. If the can is newly opened, the bulk of the oil should be poured off of the settled solids, which should be thoroughly stirred, and the oil poured back a little at a time and stirred in, but no additional oil be introduced unless called for. If a superintendent is to exercise any control over the make of painter's materials, the architect specifies that these shall all be brought to the building "in original packages, bearing the maker's name and brand," and that all containers shall be opened in the presence of the superintendent.

A WIDEAWAKE SUPERINTENDENT

Specifications for our school building contained this clause and also stipulated what makes and brands of paint and varnish materials were to be used for each purpose in each location. The subcontract for the painting and varnishing was let to a local concern which requested permission to substitute brands regularly carried in its own stock. These were of dubious quality, and hence the architect insisted upon use of the goods called for. As the time approached for the beginning of this work, the boys' gymnasium was designated as a paint room, into which the delivery of wood trim was directed. Thither also the painter sent his first instalment of sealed cans and kegs, which were duly inspected and found "o. k." by the superintendent. He had been warned that the painter might try to "put something over," and hence was watching him closely. An hour after the truck left, the superintendent returned to the paint room and found the paint foreman and an assistant busily opening the various cans, apparently regardless of whether they were for immediate use or not. Their only explanation was that "it was customary" to do so, and they seemed surprised when the superintendent stopped them and made a record of each can opened. No empty containers had been brought in, nor had any brushes or other implements been delivered. The superintendent kept his eye open for the second appearance of the painter's truck. It did not return, but another arrived at 7 o'clock the following morning and unloaded several miscellaneous cans, some full and some empty, all open. The full cans all bore the requisite labels, but noticeably misused. As these various items were being deposited outside the locked paint room, the paint foreman came in, but was prevented from unlocking the paint room until the arrival of the general foreman, when they and the superintendent entered together. As the latter suspected, all of the containers that had been delivered the previous day had been opened and the labels removed. Thereupon, the superintendent told the general foreman to take back the key from the paint contractor and to remove from the premises all the material he had delivered, there being no way of identifying it. There was much expostulation from the foreman, and still more when his employer arrived; but the architect's man stood his ground and later received full backing from headquarters. The architect refused to allow that subcontractor to proceed, and hence another was located who was willing to do as agreed. Some delay resulted, but there was excellent coöperation from the start, and the superintendent was well repaid for having caught the attempted cheating in its inception.

This is not an exceptional case, though an inspector generally looks for something less crude and not quite so early in the proceedings, if a painter is inclined to swindle. His opportunities for so doing are legion. Some have been known to boast that no superintendent is smart enough to catch them, which is an excellent reason for limiting one's painting to responsible contractors. Some architects appreciate this so keenly that they favor giving the work outright to painters they know are to be trusted, and letting them select their own materials. This is frequently done with high class finishing and decorating contracts, much to the relief of the superintendent. Others stipulate that "the Contractor undertaking this work, thereby avers that he can produce first class work with the materials and by the methods specified, and that he will not attempt to cover any material not in fit condition to receive such covering, but will notify the proper party regarding it. This Contractor will be held to produce satisfactory work within the terms of this specification, without excuse."

CHECKING THE FINISHES

The superintendent should receive from the architect a sample of each kind of finish that is to be applied, and must see that these are properly matched; also that the specified number of coats, and the required rubbing or other treatment are provided. He also sees that the painter provides drop cloths and other protection, where and as needed. An excellent means for keeping track of the number of coats of paint used is to have the color of each coat sufficiently different from the next preceding to show plainly, not only that another coat is being applied, but that it is covering well.

In addition to the paint materials that have been described, the superintendent must familiarize himself with a long list of interior finishes, some of which, such as varnish, have exterior uses also. Materials for these finishes include shellac, lacquers, fillers, stains, oils, varnishes, waxes, etc., as well as the paint constituents.

Enamels are paints in which varnish is used as the vehicle, giving a gloss, dull or semi-gloss finish, as desired; presumably smoother, harder and better wearing than ordinary paint. Turpentine is introduced to dull the finish, to the intended degree. Enamels may contain any of the various inert-extenders used (with due caution) as in other paint; and are applied in several coats as specified. Enamels flow smoothly under the brush and can be made to cover well in two coats over the primer; but, for best results, enamel is applied in thinner undercoats of paint or flat enamel, three or more coats between the primer and the finish coat.

THE USE OF LACQUER

The general use of lacquer as an interior finishing material is less than ten years old, and hence it is, to a certain extent, still in an experimental stage. Prior to 1921, a film of lacquer was so thin that its only use in building construction was as a protective coating for fine hardware and the like; but now we have heavy-bodied lacquers, both clear and pigmented, for all sorts of interior uses, to be applied by brushing, spraying or dipping (but strictly as intended by the manufacturers).

Lacquers are composed of nitrocellulose, resins (both synthetic and natural), plasticizers, pigments (if desired), and solvents. Nitrocellulose gives toughness, strength and durability to the film, whereas the resin content imparts gloss and adhesion. Elacticity results from the presence of the plasticizers. The solvents, chief of which is butyl acetate, simply act as a means for application. As soon as the lacquer is applied, the film begins to set, due to evaporation of the solvents. No oxidization takes place, as is characteristic of paint film.

LACQUER SURFACE PREPARATION

Surfaces intended to receive a lacquer finish must be even more carefully prepared than for paint, varnish or enamel, because lacquers do not dry uniformly on surfaces carrying grease, oil or rust. Special undercoats should be used under lacquer, since regular paint undercoats are affected by the action of the lacquer solvents.

A large percentage of all interior wood trim is finished in natural color, treated to bring out the grain to best advantage, or stained in an effort to make it more attractive, or match other work. Most hardwoods and some softwoods are finished in this manner, with a varnished, lacquered, oiled or waxed surface. Preparatory to this finishing, it is necessary to apply the stain (if any is required) and to fill the pores of the wood, in order to provide a smooth, solid foundation for the finish. Prior to the application of the stain or filler, the surface to be treated must be clean, smoothly sandpapered, and free from dust. All nail heads must be properly set, as was explained in the chapter on Finish Carpentry. These are to be puttied *after* the staining and filling, so that the oil in the putty will not discolor the surrounding wood. Woods are open- or close-grained, and hence need fillers suited to their texture. Among the open-grain hardwoods are oak, ash, walnut, chestnut, rosewood, and mahogany. Close-grain hardwoods are beech, maple, birch and cherry. The softwoods, fir cypress, gum, redwood, poplar (whitewood), spruce, hemlock and the various pines, are also called close-grained. These latter either for trim or floors, if to have natural finish, demand oil stain, as acid stains would raise their grain. Hardwoods take oil, acid or aniline stains. Aniline stains are to be had either in oil or spirit solvents, are clear colors, without pigment, and are very penetrating. The spirit stains (cut with alcohol) are seldom used because of the extreme difficulty in applying them evenly, and because of their tendency to "bleed," or work up into the filler and discolor it. "Acid" stains are, perhaps, most used, and are made by dissolving dyes in water or kindred solvent. Oil stains are pigments ground in oil, usually linseed, and reduced with turpentine, or some similar penetrating vehicle.

STAINING OPEN-GRAINED WOOD

Specifications for staining open-grained wood call for its being first "sponged with cold water, and when thoroughly dry, sanded with No. 00 sandpaper; after which (an approved) acid stain, in shade selected, shall be applied and, when dry, the surface again sanded as before." Then follows the filler (paste filler for open-grained woods and liquid for the close-grains). Paste fillers are composed of finely powdered silica (silex) and quick-drying varnish, slightly reduced with turpentine for better working. Cheaper bases than silex are used in some fillers, but silex is preferred. It is applied with stiff brushes, and the surplus removed after a few moments with rags or burlap. All brushing or rubbing is across the grain, as it would otherwise tend to draw the filler out of the pores. Liquid fillers are variously composed, either a thinned paste filler or with other base, mixed with linseed or gloss oil. Gloss oil is a cheap preparation of rosin and naphtha, and is not looked upon

with favor by architects. "All kinds of pigments have been used (in liquid fillers), but the most satisfactory are either asbestine or china clay on account of the property these pigments have of remaining in suspension. Notwithstanding the fact that the general run of liquid fillers has deteriorated, a few of the best manufacturers are producing goods for this purpose which really have quality. These goods are necessarily made so that they dry very hard and firm, carry sufficient pigment so as to fill the pores to a certain extent, and give a surface which is very non-absorbent and over which the varnish may be applied in such a way as to have a good full body and luster. This class of materials is not recommended for use on floors or for exterior purposes, on account of its extremely hard nature, yet for certain purposes, it serves in a very favorable way." (R. W. Lindsay in the article previously mentioned.) For the sake of economy, stains are sometimes combined with liquid filler, but such procedure is not recommended. Exceptions to this are the stains used for shingles, etc., chiefly as preservatives, with creosote or other oil added. These are in various colors and have sufficient body to partly obscure the grain of the wood. They are much used where a weathered effect in the wood is desired. See mention of shingle-dipping in Chapter 20, Roofing and Sheet Metal Work.

IT PAYS TO INSIST

An instance of the sort of problem which sometimes confronts an architect is that of one whose superintendent was making a trip each forenoon to a residence job. One afternoon, the owner telephoned the architect that shingle-dipping had started at noon, but that the expected odor of the specified creosote was missing, being replaced by a distinct aroma of gasoline. This the contractor, who was having his own laborers do the dipping, explained by saying that he was using what the supply house sent. This happened to be a concern for which the same architect was designing a large warehouse. Disregarding this, he ordered the misused stain removed and replaced by what was specified, without dilution. He quickly received a 'phone call from the outraged dealer who demanded to know his reason for discriminating against a remunerative client. He explained, but the explanation appeared to be far from satisfying. Now, it happened that the man who expostulated was not the partner who had employed the architect for their warehouse, but who had, in fact, patronized a competitor on several occasions. Two years later, however, the same paint dealer approached the "stiff-backed" architect regarding the design of a pretentious suburban home. The latter, surprised, protested that he disliked taking a client away from a friendly brother practitioner. But the other insisted and gave as his reason that he preferred for his own work a man who compelled contractors to live up to their specifications regardless of any pressure that might be brought to bear. "Bread cast upon the water" does *sometimes* return, with profit.

SHELLAC AS A FILLER

Shellac, cut with alcohol, was the original filling material, and is still so used, especially as a pore-sealer for softwoods, such as fir, pine, spruce, etc., under either varnish or enamel. "White pine and poplar are not often varnished because their grain is not attractive. Hard or yellow pine and cypress are filled with pitch or gum to such an extent that it is very difficult to make surface coatings adhere to them. In extreme cases it may be necessary to treat the surfaces of these woods with benzol, solvent naphtha, or turpentine just before the application of the paint or other coatings. These materials tend to dissolve the gum or resin enough to increase the adhesion of the paint." *The same may be considered true of other very resinous softwoods. Shellac is an orange-colored resin, refined from lac, which is an East Indian product, extracted by an insect from the twigs of trees. For use, it is cut with denatured alcohol, or with grain alcohol, to which 10 per cent of wood alcohol has been added. Shellac is also to be had in bleached form, called white shellac, to be used where the color of orange shellac is undesirable.

Varnish is applied in successive coats over the shellac or other filler. It is a liquid coating, composed chiefly of resin dissolved in a drying oil, to which a volatile thinner and a drier are added. Rosin is substituted for all or part of the resin in cheap varnish. It is important that the superintendent should have a clear idea of the difference between these two gums. Resin is the solidified sap or balsam of various trees, and is found in a fossil state in the ground, in several countries. It is from this fossil resin that the best varnishes are made. Rosin is the residue left by the distillation of turpentine from pine tree sap. Lac is a form of resin, hence shellac is a spirit varnish, in contrast with the oil varnishes just defined, which latter are generally meant by the term "varnish." Incidentally shellac and varnish can both be adulterated by the use of rosin, which is taboo with all architects. The various resins, named according to the localities from which they are derived, vary in cost and in the elasticity, hardness and durability which they produce in the varnish coats into which they enter. Thus, manufacturers offer different varnishes for different services, for interior and exterior finishes and

*W. C. Huntington in "Building Construction."

for floors. Unless an architect feels warranted in compelling his finishers to submit their varnishes to chemical tests, he either specifies them by maker's name and brand, or calls for grades that will produce the desired results. In the first instance, the containers provide the evidence of what is supplied; but, in the last case, the superintendent must exercise his own judgment, either by knowledge of the brand, or the price paid, or by other information obtained from the supply house. But many painters deal in paints and varnishes, and hence their statements on the point would hardly be deemed the best evidence. One learns, therefore, to depend more upon the character of the contracting painter and the work he produces, than upon other factors.

DRYING OILS

The drying oil in better varnishes is the best of linseed, though tung oil (China wood oil) is likewise so used. Again quoting Mr. Lindsay, "China wood oil has two important properties which are not found in linseed oil. A varnish made with China wood oil will be very much more waterproof than that made with linseed oil. In the second place, China wood oil has the property of causing the varnish to harden very much more quickly than when linseed oil is used. These two properties make China wood oil a very important and essential feature in certain classes of varnishes. On the other hand, linseed oil produces in a varnish greater elasticity, fuller body and luster, and better flowing properties than can be obtained with China wood oil." From which he concludes that linseed oil is more desirable in outdoor or "spar," varnishes, but that, "in designing a floor varnish, we must of course look to the China wood oil for our waterproofness and, to a considerable degree, for our hard-drying properties. At the same time, we must look to our linseed oil in order to obtain the maximum amount of elasticity in the varnish film." A good varnish "is not affected by hot or cold water, will not crack, blister nor turn white." A poor varnish may do any or all of these objectionable things, and it is especially likely to show white when scratched with the thumbnail, indicative of the rosin in its makeup.

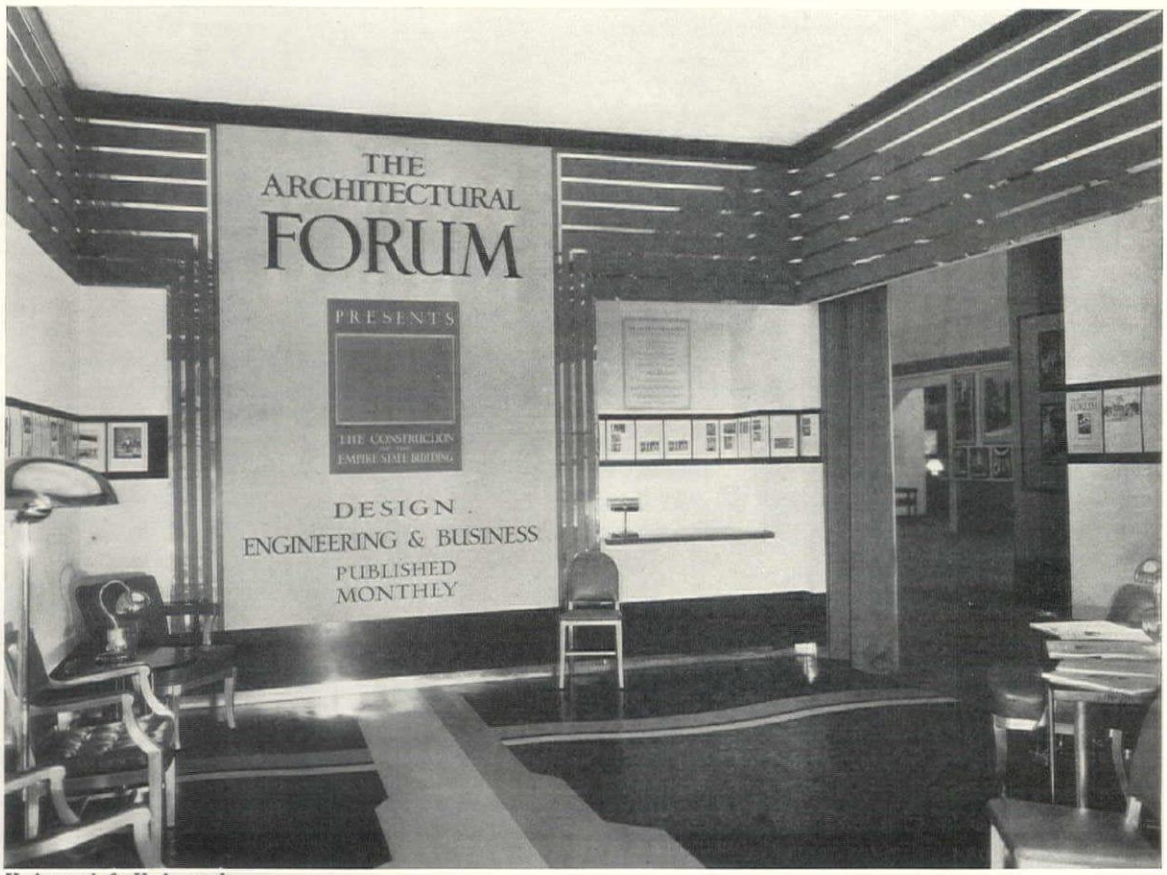
VARNISH SPECIFICATIONS

Specifications for varnishing call for three coats over the stain, for good work, two coats for cheap work. The finish coat may be either full gloss, "eggshell gloss" or dull finish. In better work, the gloss is dulled by being rubbed with pumice stone or rotten stone and oil, to produce the desired effect; but for cheaper results, there are varnishes which dry with a dull finish. Before the first coat of varnish is applied, the filler, after being allowed 24 hours to dry, is sandpapered, using No. ½ for paste fillers and No. 00 for liquid fillers. The dust is wiped off, and the nail-holes and cracks puttied. The same putty is used as for glazing (see preceding chapter), with the addition of about 10 per cent of white lead and the necessary coloring material. It should be smoothly applied, so that, after varnishing, the spots are practically invisible. The varnish is evenly applied in successive coats, allowing 48 hours for drying in each case. After drying, each coat is sandpapered with No. 00 sandpaper, except that the final coat receives whatever treatment is called for; but no more sandpapering or other rubbing can be demanded of a contractor than is distinctly included in the contract. Steel-wool is sometimes used in place of sandpaper for rubbing between coats. Excelsior and curled hair (horsehair) are substitutes for pumice, used for rubbing the final coat. It is well to allow a longer period than 48 hours for drying of the final coat before rubbing; some varnish makers ask 72 hours. For a dull finish, pumicestone and water are sometimes specified in place of pumicestone and oil.

TREATING WOOD TRIM

Care should be taken that *all* edges of sash and doors are treated, especially the top and bottom edges, which are not easily inspected. For wood working parts, such as the sliding edges of the sash and the grooves in the jambs, hot mutton tallow is applied in place of paint or varnish, a good, long-lived lubricant being indicated. Soap may be substituted for the tallow, if the superintendent is not wideawake to what is taking place on the job.

To be continued in THE ARCHITECTURAL FORUM *for July.*



Underwood & Underwood

A motion picture, centered on the enlarged cover, was a feature of our own exhibit

ARCHITECTURAL AND ALLIED ARTS EXPOSITION

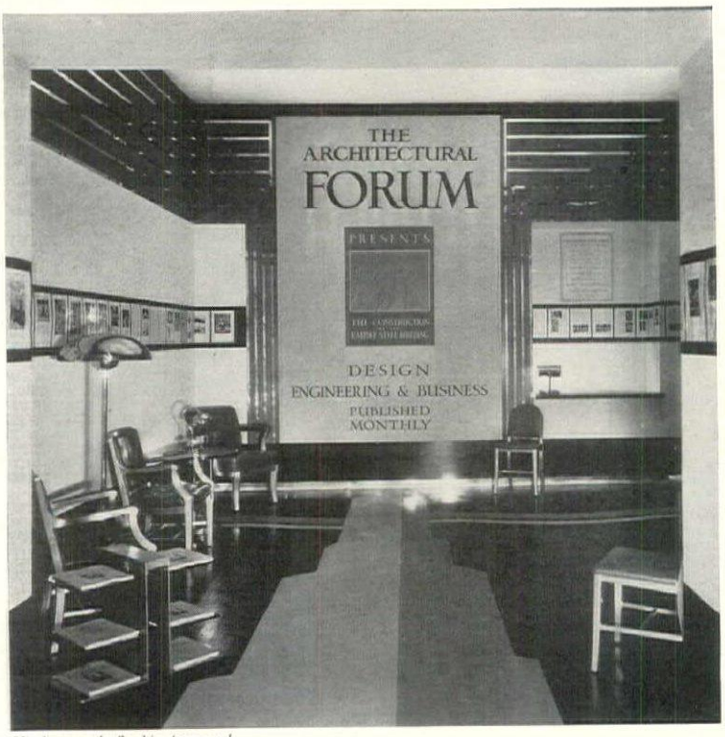
GRAND CENTRAL PALACE
NEW YORK, APRIL 18th to 25th

THE Fourth Biennial Architectural and Allied Arts Exposition of New York, held in the Mecca of all Metropolitan expositions, the Grand Central Palace, ended a successful week's run on April 25th. It was estimated that 135,000 people (not counting the weary booth-tenders in their ploddings to and from dinner) passed through the turnstiles, and viewed with varying emotions the exemplary objects of art that lined the walls, and the commercial exhibits that filled the rented areas occupied by manufacturers, decorators, and, last of all, the professional magazines.

The exposition was of especial significance this year in that it commemorated the fiftieth anniversary of the Architectural League of New York. The New York Chapter of The American Institute of Architects joined with the League in celebration; and the Society of Beaux-Arts Architects and the New York Building Congress combined in endorsing the program. Since practically all the architects in the city belong to one, two, three or all four of these organizations, the whole affair was one of complete harmony, representing a united architectural front to the critical gaze of New York.

The climax of the week was the anniversary dinner of the League, at which the annual awards were made to the following:

Eliel Saarinen and William F. Lamb, Gold Medals of Honor in Architecture; Peabody, Wilson & Brown, Silver Medal in Architecture;



Underwood & Underwood

Materials and equipment for the booth were supplied by the following companies: insulating wall board, Johns Manville; Formica, Formica Insulating Co.; aluminum chairs and strips, Aluminum Co. of America; linoleum, Congoleum Nairn Co.; drapes, Cheney Bros., fabricated by Charles Waldman; lighting equipment, Westinghouse Lamp Co.; dimmer equipment, Ward Leonard Electric Co.; painting, Craftex Co.; lighting fixtures and tables, New York Art Iron Works Corp.; motion picture film, Post & McCord

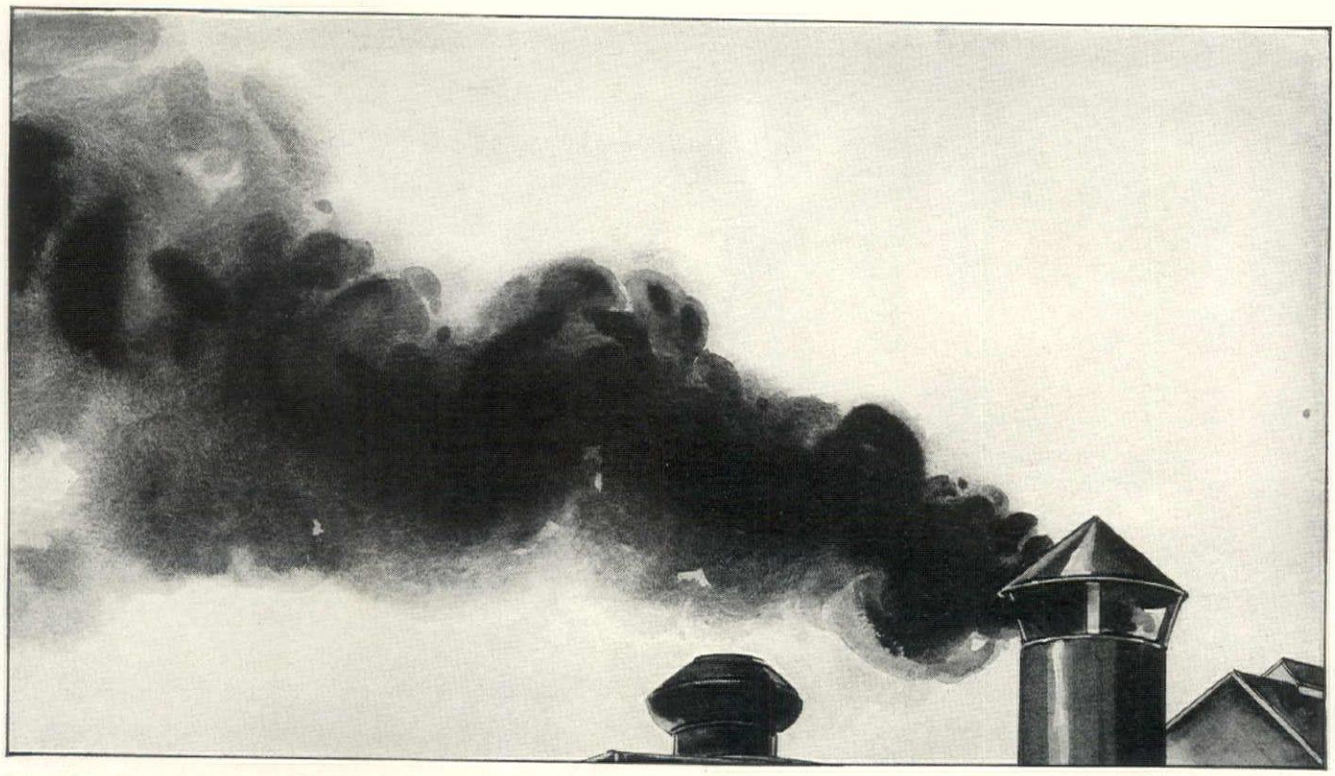
Lee Lawrie, Gold Medal of Honor in Sculpture; John W. Norton, Gold Medal of Honor in Painting; Eugene Schoen, Gold Medal of Honor in Native Industrial Art; Schell Lewis, Birch Burdette Long Memorial Prize for rendering; Nino Geraci, Avery Prize in Small Sculpture; Gilmore D. Clarke, Gold Medal in Landscape Architecture; V. F. Von Losberg, Michael Friedsam Medal for accomplishments in development of art in industry.

To the populace, however, the high light of the show was "Aluminaire—A House For Contemporary Life." As its title suggests, the house made prominent use of aluminum, so much of it, in fact, that it was called by the publicity department as the "first all-metal house attempted in America." Its exterior walls were of corrugated aluminum sheathing, and its structural frame was largely of aluminum beams and girders. While there were many who hailed it as a most important step in the development of small house construction, and others who characterized it as extreme, all felt that it was an interesting example of present day possibilities in construction and the use of materials. The house was designed by A. Lawrence Kocher and Albert Frey.

Scarcely less compelling in interest were scores of other exhibits; among them, a window sash-spandrel-radiator unit, seashell walls, beds that folded up into dining room tables, tables that unfolded into kitchenettes, mosaic making, a model of Lower New York, and myriad products to delight the inventive architect, and amuse the novelty-seeking public.

THE ARCHITECTURAL FORUM welcomed its visitors in a booth designed by the editors of the magazine. The decorative scheme of the booth suggested the progressive spirit of the magazine. Its focal point was an enlarged cover of the magazine, through which a motion picture of the construction work on the prize-winning Empire State Building was shown. The complete story of the design and construction of this building has been a feature of several issues of the magazine. Another installment will appear in July of this year.

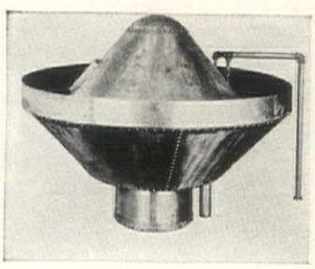
Horizontal bands of aluminum, and black and red Formica against a gray background ran along the ceiling, and terminated at the coverpiece. Midway between ceiling and floor, a band of text pages and plates from recent issues of the magazine were introduced. The base was of black Formica and aluminum, and the walls were of JM insulating board painted with white Sunflex. The floor, of black, white and gray Sealex Linoleum, was designed in a conventionalized skyscraper and cloud pattern to aid in centering attention on the screen. Colorama lights played through a double cloth ceiling to produce an interesting effect in the simply-designed booth. Heavy satin drapes in red and silver were hung at the entrances, and harmonized with the aluminum chairs upholstered in red leather. The tables and lighting fixtures were of black glass and chrome-plate.



A durable metal for a "tough" job–

EVERDUR

selected for smoke washers



AT THE LEFT is illustrated a practical mechanism in which smoke is actually washed before being released. This smoke washer so reduces the percent of noxious fumes and solids that the smoke "nuisance," from *that* chimney, is practically eliminated.

Because of the corroding effects of smoke gases, the metal of which the device is made is subjected to exceptionally severe service. To minimize the effects of corrosion, the manufacturer, American Smoke & Soot Washer Co., Inc., recommends complete Everdur construction, including plates, shells, coils and nozzles.

Everdur Metal, an alloy of copper (96%), silicon and manganese, possesses the strength of steel. It offers high resistance to acid conditions resulting from the sulphur content of the smoke. Everdur is not expensive and can be fabricated by all usual methods. Anaconda Publication E-2 contains detailed information in regard to this alloy. Address: The American Brass Company, General Offices: Waterbury, Connecticut.

EVERDUR
Reg. U. S. Pat. Off.

AN ANACONDA PRODUCT

EVERDUR METAL

SOLID NICKEL SILVER

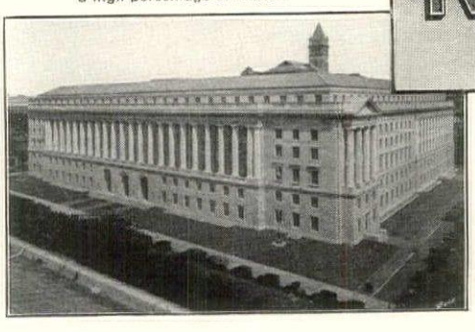
...a white long-wearing base for quality plumbing fixtures

The increasing demand for a white base for plated sanitary fixtures points to the superiority of solid Nickel Silver.* This solid white metal... a high Nickel alloy... provides an ideal base material for chromium plated fixtures. Solid Nickel Silver plumbing fixtures resist the corrosive action of gases and acids. If the Chromium plating wears off, if the base is Nickel Silver, no unsightly spots will show to mar the appearance of fixtures. Solid Nickel Silver itself is also easily cleaned. Hard and tough like bronze, it renders lifetime service and gives unusual wear-resistance in valve seats. To meet architectural standards of quality specify Solid Nickel Silver plumbing fixtures—they "look better longer".

*SILVARD is the name used by Standard Sanitary Mfg. Co. to identify its Nickel Silver used in plumbing fixtures. This is a solid white metal and contains a high percentage of Nickel.

SOLID
Nickel
SILVER

INCO NICKEL



THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N.Y.

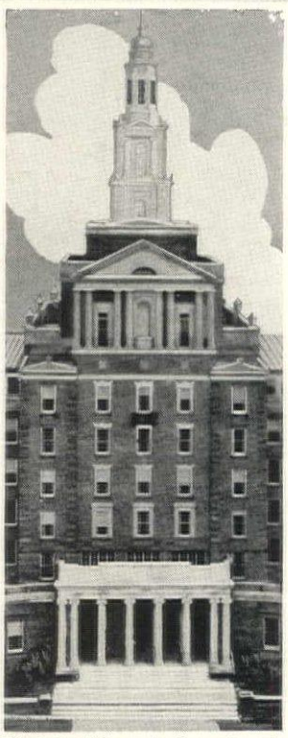
Miners, refiners and rollers of Nickel... Sole producers of Monel Metal

Internal Revenue Building, Washington, D.C. Chromium Plated Solid Nickel Silver★ plumbing fixtures by Standard Sanitary Mfg. Co., Pittsburgh, Pa.; Arch. James A. Wetmore, Treas. Department, Washington, D.C.; General Contractor James Baird Company, Inc., Washington, D.C.; Plumbing Contractor, W. G. Cornell Co., Washington, D.C.

Planned for Generations to come

Founded, as every insurance company is, on the idea of providing for the future, the great Aetna Life and affiliated companies have given a noble embodiment to this idea in the building which is henceforth to be their home. With all that is most modern and most practical, the building has a very evident character of the institutional, the monumental, and the permanent.

Quite suitably, and recognizing, no doubt, that what has no past is "pretty sure of having no future," the designers have harked back to early traditions in this country. The result is a fine example of the American Colonial style, said to be the largest building of that style in existence, for any purpose.



Colonial architecture dominates the main entrance of Aetna's beautiful new home.

The choice of NATIONAL Pipe for a major use in so fine a project, so conceived and so designed, adds to the long record of testimony as to the character of—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY

Subsidiary of United States Steel Corporation

PITTSBURGH, PA.

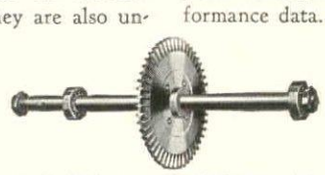
NATIONAL PIPE

WESTCOS REMOVE THE "PUMP TROUBLE" HAZARD

A Model 6F6 with 7½ h.p. motor delivers 100 g.p.m. at 125 ft. in this building at 91st St. and Riverside Drive in New York City.

SEE OUR CATALOGUE IN SWEETS

Fluctuating city pressures will never threaten the efficient performance of WESTCO TURBINE PUMPS. This fact is guaranteed by their proven ability to consistently deliver adequate volumes of water even though the intake and discharge pressures may vary. * * * WESTCOS' record of successful installations has demonstrated them to be the ideal pump for house and booster service in modern buildings. They are also unsurpassed when used in conjunction with refrigeration systems for the circulation of brine and ice water. * * * Yearly lubrication is the only attention that these simple, sound Turbine Pumps require. So, specify WESTCO TURBINE PUMPS, thereby insuring the client's satisfaction with trouble-free pump performance—and your own satisfaction in seeing a job done well. Write for complete descriptive and performance data.



Westco's "100 Pumps Within a Pump"

Review These Outstanding WESTCO Features

Wider Operating Range.
No End-thrust at Bearings Due to Perfect Hydraulic Balance.
Only One Moving Part.
No Metal to Metal Contact.
High Pressures in Single Stage.
Ball Bearing Construction.
Direct Motor Driven at Standard Motor Speeds.
Capacities from 5 to 400 g.p.m.

WESTCO *TURBINE* PUMPS

WESTCO PUMP CORPORATION (name changed from Westco-Chippewa Pump Co.) Factory and General Offices: Davenport, Iowa. Branches: New York, Chicago and San Francisco. Distributors in 50 principal cities.

THE CUTLER MAIL CHUTE

Is backed by—

An experience of fifty years.

A factory equipped and operated for our own work exclusively.

A force of experienced erectors in the field.

A determination to keep our product and service up to the highest possible standard.

Correspondence invited

CUTLER MAIL CHUTE CO.
GENERAL OFFICES AND FACTORY
ROCHESTER, N. Y.

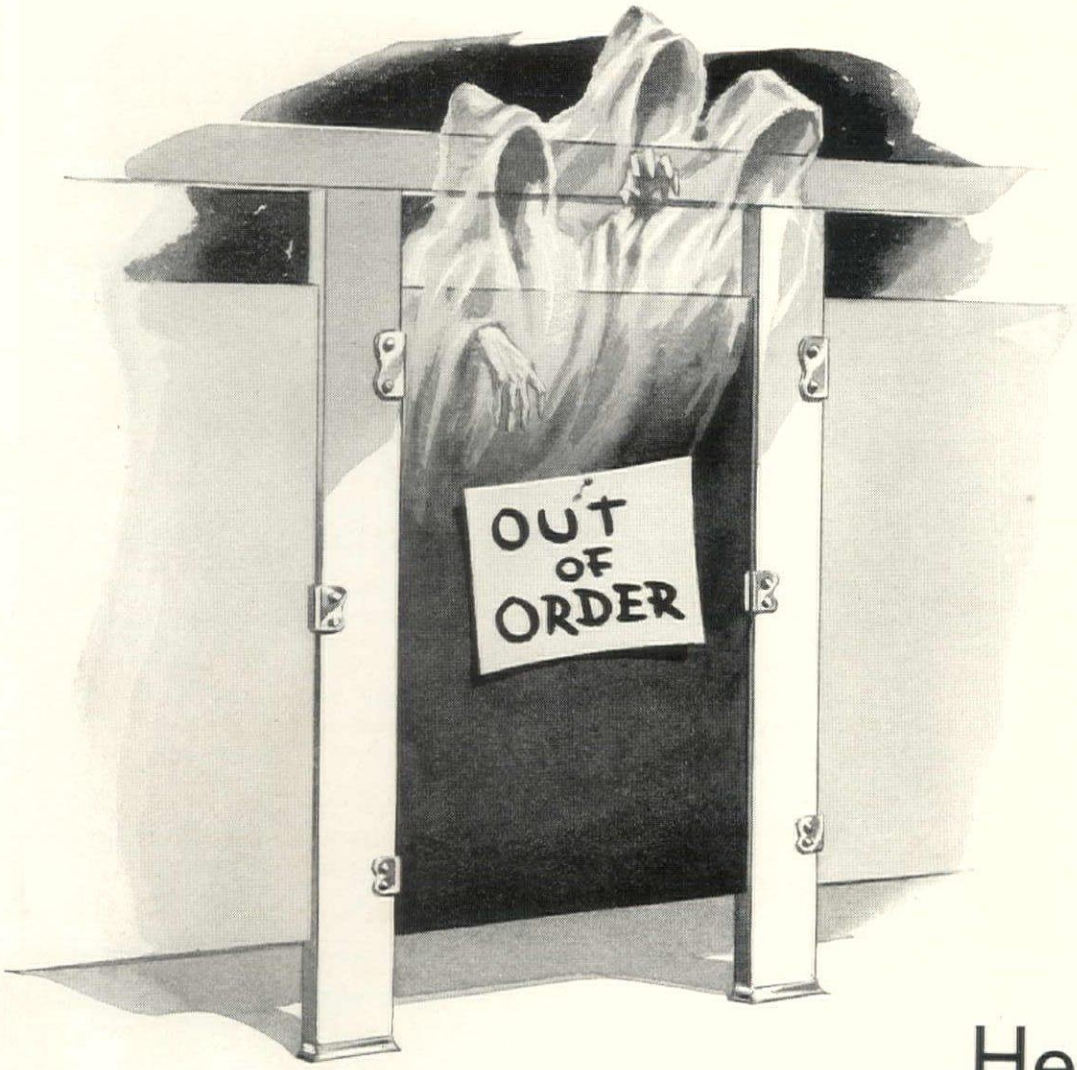
"A Single Breaker May Recede—but The Tide Is Coming In!"

TO make the most out of 1931, introduce into your business the best new blood you can. Conditions today present golden opportunities. Now is the time to strengthen organization. Strong executives, well-qualified technical men are available. Leaders who would take advantage of this situation should consult THE NATIONAL ENGINEERING SOCIETIES and AMERICAN TRADE ASSOCIATION EXECUTIVES. These organizations have rosters of surprisingly well-qualified men of splendid training and success.

When you are in need of industrial and technical executives, professional engineers, or technicians—communicate with—Engineering Societies Employment Service: New York Office—Walter V. Brown, Manager, 31 West 39th Street; Chicago Office—A. Krauser, Manager, 205 West Wacker Drive; San Francisco Office—Newton D. Cook, Manager, Room 715, 57 Post Street.

Should your requirements be for business or trade executives, write:—American Trade Association Executives, 45 East 17th Street, New York, N. Y.

This service is the contribution of these professional organizations to industry.



He Fights Plumbing Failure and High Costs

Faulty design, inferior construction or improper layout of plumbing in schools, hospitals, industrial plants, public buildings and similar places, can develop into serious menaces to health and efficiency.

For failure in such installation creates unsanitary conditions, pollution and disease germs.

But in addition, such failures represent a very tangible waste in dollars for repair and replacements, which often amount to terrifying figures.

It is the job of the Clow Soldier of Sanitation to make sure that each installation, on which he is called in, provides the very ultimate in sanitation surety—and also to make certain that the installation will function on a very minimum of dollars.

To back him in this important work, Clow goes to extreme lengths in the factory.

For example: every battery of urinals, closets, lavatories and similar fixtures is set up according to specifications before shipment—and tested under conditions bordering on actual service.

Such plumbing is not intended to fail, wear out rapidly or to be rejected after partial installation.

And builders, architects, owners and plumbers have the assurance of perfect sanitation, with the lowest possible cost, through the years.

CLOW

CHICAGO

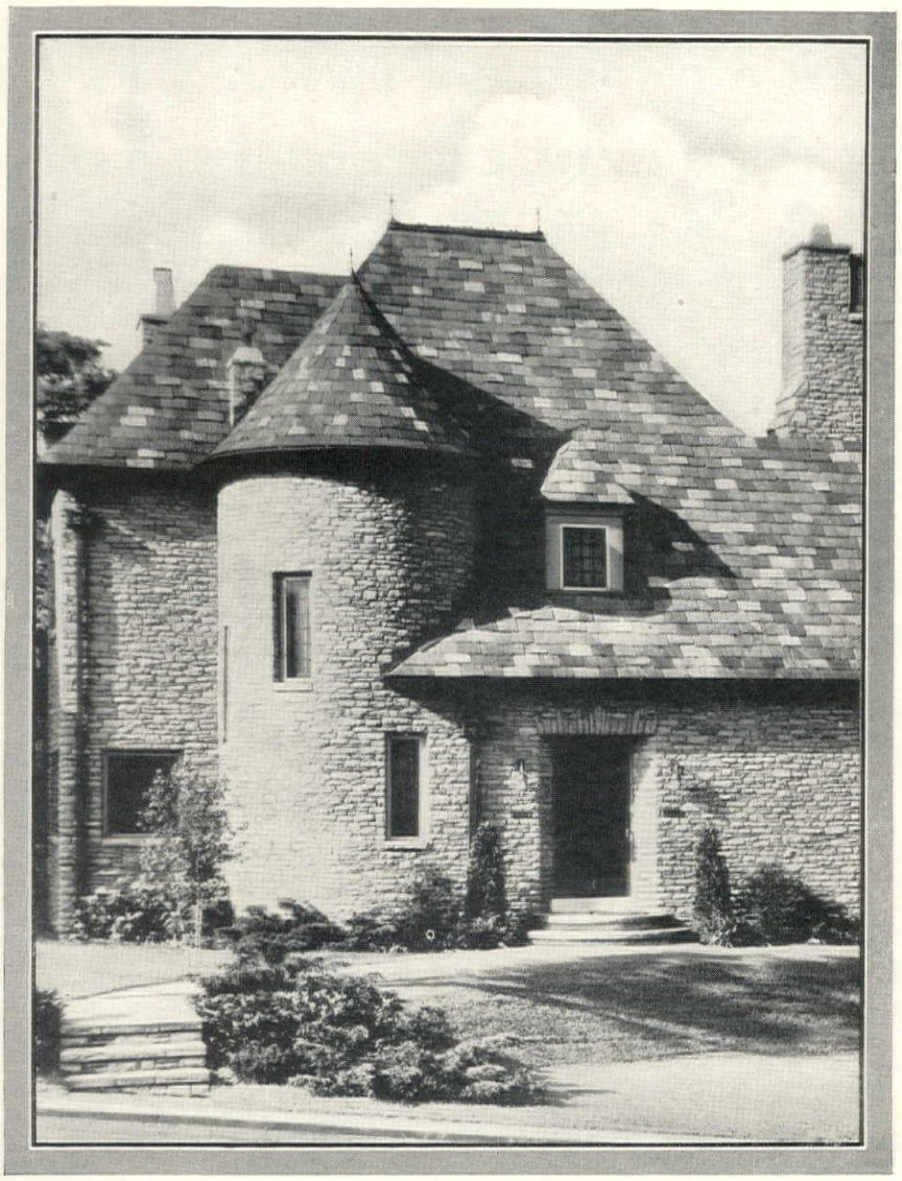
PREFERRED FOR EXACTING PLUMBING SINCE 1878

Consult your architect

On all jobs where sanitation may develop into an acute problem—the Clow Soldier of Sanitation will gladly give you the fruits of Clow's 52 years of experience. And this man has behind him the most complete line of specialized fixtures in the world. Call him in. This is Bill Abell, Aurora, Ill.—North Central Illinois Territory.

False Economy in Pipe

INVITES PROPERTY LOSSES



A residence designed and built by Edward Crump, Jr., Pittsburgh, Pa., in which Byers Genuine Wrought-Iron Pipe is installed.

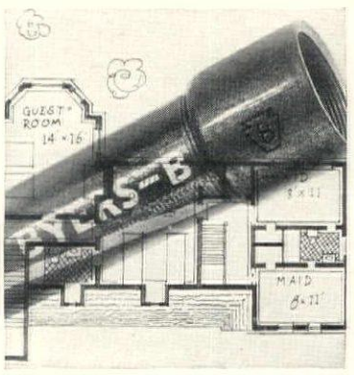
"PIPE PRESCRIPTION" was developed by leading architects. Experience and research impressed them with the fact that the true measure of pipe economy is cost per year of service. A desire to render the utmost service to their clients inspired its adoption and is the reason for continued adherence to it.

Emphasizing this policy to the buying and building public, we state: "Your architect knows the places where wrought iron has demonstrated its superiority. He also knows that Byers Genuine Wrought-Iron Pipe is a standard of wrought-iron quality. For these reasons it is to your advantage to approve the 'pipe prescription' he submits to you."

Original cost is a single factor of consideration in the creation of a building and in the installation of pipe. The true measure of pipe economy is cost per year of service. Comfort is assured and property is protected by specification and installation of the right pipe in the right places. In those places where its superiority is established by actual service, there is no economical substitute for wrought-iron pipe.

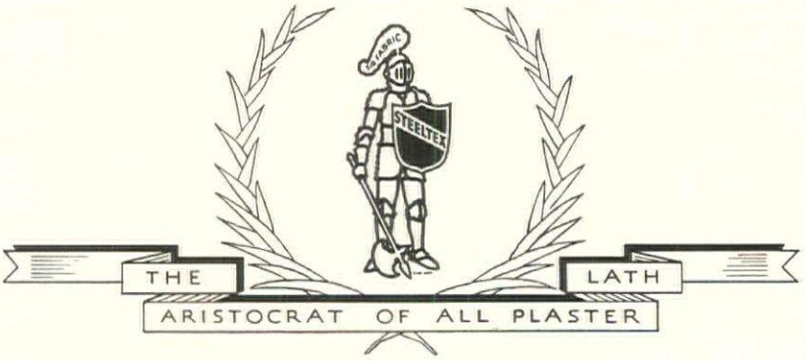
The public has confidence in wrought iron. However, we accept as a business responsibility preservation of the traditional superiority of Byers Genuine Wrought-Iron Pipe in its proved fields of service and urge it only for its places in a "pipe prescription" that provide the most durable service for original minimum cost.

As an expert you know of many places in which Byers Genuine Wrought-Iron Pipe has proved its adaptability and service. There are still greater numbers developed within the past few years. Are you familiar with them? The facilities of our organization are at the disposal of any architect in helping solve pipe problems. Write us today! And remember, the spiral stripe identifies Byers Genuine Wrought-Iron Pipe. A. M. Byers Company, Pittsburgh, Pa. Established 1864.



BYERS GENUINE WROUGHT-IRON PIPE

AN INVESTMENT • NOT AN OUTLAY



WHAT STERLING IS TO SILVER

STEELTEX IS TO LATH

THERE is no compromise for quality. And only quality products survive in this day and age. All others sooner or later pass into discard. Substitutes may thrive now and then, but the conscientious manufacturer realizes that to serve well, the product must be of the highest possible quality . . . and be sold at a fair margin of profit to maintain that quality,—unreservedly.

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Ribbed STEELTEX Lath is, and always has been, a quality product. Millions of resources are back of it to maintain and safeguard that quality . . . always. Therefore, the trade name STEELTEX has true significance. It is more than a mere name . . . it is a guarantee of definite quality in a lath. What sterling is to silver, STEELTEX is to lath. Ribbed STEELTEX Lath for interior plaster, is the standard of quality and fineness . . . it is the aristocrat of all plaster lath. And yet the cost is no more.

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Ribbed STEELTEX Lath is a modern and scientific product proved by thousands upon thousands of installations everywhere,—in apartments, schools, hospitals, churches, residences, industrial housing projects, U. S. Government work, public and private institutions, office buildings, department stores, factories, etc. Ribbed STEELTEX Lath is suitable and economical for any type of building whether a quaint cottage or pretentious mansion.

STERLING

THE MARK OF QUALITY

Ribbed STEELTEX Lath consists of heavy backing for insulation, and welded steel wire reinforcing, plus rib stiffeners across the back to give board-like rigidity,—and when plastered, insulates, deadens sound, eliminates lath marks, prevents falling plaster and minimizes cracking, and carries the Underwriters' one-hour fire rating,—and also gives 5 other desirable results, all of which are found in no other lath. Write for literature.

STEELTEX

THE MARK OF QUALITY

NATIONAL STEEL FABRIC COMPANY

UNION TRUST BUILDING DIVISION OF Pittsburgh Steel Co. *PITTSBURGH, PA. U.S.A*

WORLD'S LARGEST MANUFACTURERS OF WELDED STEEL FABRIC

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Selected List of Manufacturers' Publications

FOR THE SERVICE OF ARCHITECTS, ENGINEERS, DECORATORS, AND CONTRACTORS

The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to *The Architectural Forum*, 521 Fifth Ave., New York, or the manufacturer direct, in which case kindly mention this publication.

ACOUSTICS

R. Guastavino Co., 40 Court Street, Boston.

Masonry acoustical materials (AKOUSTOLITH Tile and AKOUSTOLITH Plaster) and Timbrel Arch Construction. Brochure, 14 pages, 8½ x 11 ins. Illustrated.

ASH HOISTS

Gillis & Geoghegan, Inc., 544 West Broadway, New York.

G & G Telescopic Hoist catalog, 8½ x 11 A. I. A. Standard Classification 30il, contains complete descriptions, method of selecting correct model to fit the building's needs, scaled drawings showing space requirements and specifications.

ASH HOISTS—TELESCOPIC

Gillis & Geoghegan, Inc., 544 West Broadway, New York.

G & G Telescopic Hoist catalog, 8½ x 11 A. I. A. Standard Classification 30il, contains complete descriptions, method of selecting correct model to fit the building's needs, scaled drawings showing space requirements and specifications.

BRICK

Hanley Company, Bradford, Pa.

General Catalog. 16 pp. 8½ x 11 ins. Illustrated.
Bradford Reds. Folder. 8 pp., 3 x 8 ins. Illustrated.

CABINET WORK

Henry Klein & Co., 25 Grand Street, Elmhurst, L. I., N. Y.

Driwood Period Mouldings in Ornamented Wood. Brochure, 28 pp., 8½ x 11 ins. Illustrated.

Ensemble Offices for the Banker and Broker. Folder. 4 pp., 8½ x 11 ins. Illustrated.

Luxurious Office Partitions in Walnut, Mahogany and Quartered Oak. Folder. 4 pp., 8½ x 11 ins. Illustrated.

CARPETS

Collins & Aikman Corporation, 25 Madison Avenue, New York.

"Seemingly Seamless Carpets." Booklet, 8 pp., 8½ x 11 ins. Illustrated.

CEMENT

Louisville Cement Co., 315 Guthrie St., Louisville, Ky.

BRIXMENT for Perfect Mortar. Self-filing handbook, 8½ x 11 ins. 16 pp. Illustrated. Contains complete technical description of BRIXMENT for brick, tile and stone masonry, specifications, data and tests.

Portland Cement Association, Chicago, Ill.

Concrete Masonry Construction. Booklet, 48 pp., 8½ x 11 ins. Illustrated. Deals with various forms of construction.

Town and Country Houses of Concrete Masonry. Booklet, 20 pp., 8½ x 11 ins. Illustrated.

Facts About Concrete Building Tile. Brochure, 16 pp., 8½ x 11 ins. Illustrated.

The Key to Firesafe Homes. Booklet, 20 pp., 8½ x 11 ins. Illustrated.

Design and Control of Concrete Mixers. Brochure, 32 pp., 8½ x 11 ins. Illustrated.

Portland Cement Stucco. Booklet, 64 pp., 8½ x 11 ins. Illustrated.

Concrete in Architecture. Bound Volume, 60 pp., 8½ x 11 ins. Illustrated. An excellent work, giving views of exteriors and interiors.

DAMPPROOFING

Minwax Company, Inc., 11 West 42nd St., New York.

Complete Index of all Minwax Products. Folder, 6 pp., 8½ x 11 ins. Illustrated. Complete description and detailed specifications.

DOORS

The Kawneer Company, Niles, Michigan.

Detail sheet, 8½ x 11 ins., with A.I.A. File No. featuring Heavy Welded Bronze Doors.

J. G. Wilson Corporation, 11 East 38th St., New York City, N. Y.

A 72-page catalog on Rolling Steel Doors and Shutters, including specifications, dimensions and other data including illustrations of installations and drawings.

Two catalogs on Sectionfold Doors Operating Overhead, contain complete information, including photographs, details, specifications and an outline of their many uses.

DOORS AND TRIM, METAL

The American Brass Company, Waterbury, Conn.

Anaconda Architectural Bronze Extruded Shapes. Brochure, 180 pp., 8½ x 11 ins., illustrating and describing more than 2,000 standard bronze shapes of cornices, jamb casings, mouldings, etc.

William Bayley Co., 147 North Street, Springfield, Ohio.

Bayley Tubular Steel Doors. Brochure, 16 pp., 8½ x 11 ins. Illustrated.

Kalman Steel Company, Chicago, Ill.

Finishing Door Openings. A.I.A. file holder with 20 loose-leaf sheets of details and specifications.

The Kawneer Company, Niles, Michigan.

Detail sheet, 8½ x 11 ins., with A.I.A. File No. featuring Heavy Welded Bronze Doors.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Fire-Doors and Hardware. Booklet, 8½ x 11 ins., 64 pp. Illustrated. Describes entire line of tin-clad and corrugated fire doors, complete with automatic closers, track hangers and all the latest equipment—all approved and labeled by Underwriters' Laboratories.

Truscon Steel Company, Youngstown, Ohio.

Copper Alloy Steel Doors. Catalog 110. Booklet, 48 pp., 8½ x 11 ins. Illustrated.

DOORS, SOUNDPROOF

Irving Hamlin, Evanston, Ill.

The Evanston Soundproof Door. Folder, 8 pp., 8½ x 11 ins. Illustrated. Deals with a valuable type of door.

DRAINAGE FITTINGS

Josam Mfg. Co., Michigan City, Ind.

Josam Products. Booklet, 73 pp., 8½ x 11 ins. Illustrated. A valuable line of accessories.

Josam-Marsh Grease, Plaster, Sediment and Hair Interceptors. Brochure. 7 pp., 8½ x 11 ins. Illustrated.

Josam New Saw Tooth-Roof Drain. Folder, 4 pp., 8½ x 11 ins. Illustrated.

ELECTRICAL EQUIPMENT

Bryant Electric Co., Bridgeport, Conn.

Catalog No. 30. Complete catalog of wiring devices 8⅝ x 10½ ins. 152 pp.

An Electrical Specification. Contains information and data useful in connection with the writing of electrical specifications. Illustrated. 8½ x 11 ins. 12 pp.

REQUEST FOR CATALOGS

To get any of the catalogs described in this section, put down the title of the catalog desired, the name of the manufacturer and send coupon to THE ARCHITECTURAL FORUM, 521 Fifth Avenue, New York.

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Name .....Business .....

Address .....

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page* 103

ELECTRICAL EQUIPMENT—Continued

The Bryant Home of Ideas. Contains data and suggestions useful in connection with residence wiring 8½ x 10 ins. 16 pp.

"KeNeX" and "HooKeX" Bulletin No. 5129. Contains data and specifications pertaining to devices for use in connection with the hanging of lighting fixtures, making such fixtures portable or removable, soldered joints being eliminated. 8½ x 10 ins. 6 pp.

Hospital Signal Devices. Bulletin HS-622-RP. Complete information on hospital signal devices. Pull Control Type. 8½ x 10 ins. 46 pp.

Hospital Signal Devices. Bulletin HS-1023. Magnetic Control Type. 8½ x 10 ins. 26 pp.

The Electric Storage Battery Co., Philadelphia.

Emergency Lighting and Emergency Power Data. Booklet. 12 pp., 8½ x 11 ins. Illustrated.

General Electric Co., Merchandise Dept., Bridgeport, Conn.

Wiring System Specification Data for Apartment Houses and Apartment Hotels. Booklet, 20 pp., 8 x 10 ins. Illustrated.

The House of a Hundred Comforts. Booklet, 40 pp., 8 x 10½ ins. Illustrated. Dwells on importance of adequate wiring.

Ward Leonard Electric Co., Mt. Vernon, N. Y.

Mobile Color Lighting. Booklet, 46 pp., 8½ x 11 ins. Illustrated. Valuable work on the subject.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Electric Power for Buildings. Brochure, 14 pp., 8½ x 11 ins. Illustrated. A publication important to architects and engineers.

Variable-Voltage Central Systems as Applied to Electric Elevators. Booklet, 12 pp., 8½ x 11 ins. Illustrated. Deals with an important detail of elevator mechanism.

Modern Electrical Equipment for Buildings. Booklet, 8½ x 11 ins. Illustrated. Lists many useful appliances.

Electrical Equipment for Heating and Ventilating Systems. Booklet, 24 pp., 8½ x 11 ins. Illustrated. This is "Motor Application Circular 7379."

Westinghouse Panelboards. Catalog 224. Booklet, 64 pp., 8½ x 11 ins. Illustrated.

Beauty; Power; Silence; Westinghouse Fans. (Dealer Catalog 45.) Brochure, 16 pp., 8½ x 11 ins. Illustrated. Valuable information on fans and their uses.

Electric Range Book for Architects (A. I. A. Standard Classification 31 G-4). Booklet, 24 pp., 8½ x 11 ins. Illustrated. Cooking apparatus for buildings of various types.

Westinghouse Commercial Cooking Equipment (Catalog 280). Booklet, 32 pp., 8½ x 11 ins. Illustrated. Equipment for cooking on a large scale.

Electric Appliances (Catalog 44-A). 32 pp., 8½ x 11 ins. Deals with accessories for home use.

ELEVATORS

Otis Elevator Company, 260 Eleventh Ave., New York, N. Y.

Otis Push Button Controlled Elevators. Descriptive leaflets, 8½ x 11 ins. Illustrated. Full details of machines, motors and controllers for these types.

Otis Geared and Gearless Traction. Elevators of All Types. Descriptive leaflets, 8½ x 11 ins. Illustrated. Full details of machines, motors and controllers for these types.

Escalators. Booklet, 8½ x 11 ins., 22 pp. Illustrated. Describes use of escalators in subways, department stores, theaters and industrial buildings. Also includes elevators and dock elevators.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Elevators. Booklet, 8½ x 11 ins., 24 pp. Illustrated. Describes complete line of "Ideal" elevator door hardware and checking devices, also automatic safety devices.

ESCALATORS

Otis Elevator Company, 260 Eleventh Ave., New York, N. Y.

Escalators. Booklet, 32 pp., 8½ x 11 ins. Illustrated. A valuable work on an important item of equipment.

FLOOR HARDENERS (CHEMICAL)

Minwax Company, 11 West 42nd Street, New York, N. Y.

Concrete Floor Treatments. Folder, 4 pp., 8½ x 11 ins. Illustrated.

FLOORS—STRUCTURAL

Truscon Steel Co., Youngstown, Ohio.

Truscon Floretyle Construction. Booklet, 8½ x 11 ins., 16 pp. Illustrations of actual jobs under construction. Lists of properties and information on proper construction. Proper method of handling and tables of safe loads.

FLOORING

Armstrong Cork Co. (Flooring Division), Lancaster, Pa.

Armstrong's Linoleum Floors. Catalog, 8½ x 11 ins., 44 pp. Color plates. A technical treatise on linoleum, including table of gauges and weights and specifications for installing linoleum floors.

Armstrong's Linoleum Pattern Book. Catalog, 6 x 9 ins., 80 pp. Color plates. Reproduction in color of all patterns of linoleum and cork carpet in the Armstrong line.

Linoleum Layer's Handbook. 5 x 7 ins., 36 pp. Instructions for linoleum layers and others interested in learning most satisfactory methods of laying and taking care of linoleum.

Public Floors of Enduring Beauty. Booklet, 9 x 12 ins., 32 pp. Illustrated in color. Explains use of linoleum for offices, stores, etc., with reproductions in color of suitable patterns, also specifications and instructions for laying.

Carter Bloxonend Flooring Co., 902 Walnut St., Kansas City, Mo.

Bloxonend Flooring for gymnasiums, assembly rooms, auditoriums, play rooms. Descriptive folder, 8½ x 11 ins. Illustrated. Full details of Bloxonend Flooring including specifications for laying.

Bloxonend Flooring for surfaces subjected to trucking or concentrated footwear. Descriptive folder, 8½ x 11 ins. Illustrated. Full details of Bloxonend Flooring, including specifications for laying.

Congoleum-Nairn, Inc., 195 Belgrove Drive, Kearny, N. J.

Facts you should know about Resilient Floors. A series of booklets on floors for (1) schools, (2) hospitals, (3) offices, (4) stores, (5) libraries, (6) churches, (7) clubs and lodges, (8) apartments and hotels. Illustrated.

Specifications for Resilient Floors. Booklet, 12 pp. A reprint from Sweet's.

A New Kind of Floor Service. Brochure, 8 pp. Data on Bonded Floors.

Sealex Battleship Linoleum. Booklet, 12 pp. Illustrated. Shows typical installations.

Sealex Treadlite Tiles. Two booklets, 8 and 16 pp. Illustrated.
Colonial Planks. Brochure, 8 pp. Illustrated.

Goodyear Tire & Rubber Co., Inc., Akron, Ohio.

Beautiful Floors, Architects' Reference Book. Brochure, 32 pp., 8½ x 11 ins. Illustrated. Valuable data on flooring.

Rubber Flooring News Monthly publications. 8½ x 11 ins. Illustrated. Giving data on flooring for buildings of many types.

Manual of Goodyear Rubber Tile Installation Booklet. 7¾ x 10¾ ins. Illustrated.

Stedman Rubber Flooring Company, South Braintree, Mass.

Stedman Ray-Proof Rubber. Booklet, 12 pp., 5½ x 8 ins. Illustrated. For X-ray Rooms.

Stedman Tile, The Original Reinforced Rubber Floor. Booklet, 16 pp., 8½ x 11 ins. Illustrated. Valuable data on flooring.

FURNITURE

American Seating Co., 14 E. Jackson Blvd., Chicago, Ill.

Theatre Chairs. Booklet, 6 x 9 ins., 48 pp. Illustrations of theatre chairs.

Kittinger Co., 1893 Elmwood Ave., Buffalo, N. Y.

Kittinger Club & Hotel Furniture. Booklet, 20 pp., 6¼ x 9½ ins. Illustrated. Deals with fine line of furniture for hotels, clubs, institutions, schools, etc.

Kittinger Club and Hotel Furniture. Booklet, 20 pp., 6 x 9 ins. Illustrated. Data on furniture for hotels and clubs.

A Catalog of Kittinger Furniture. Booklet, 78 pp., 11 x 14 ins. Illustrated. General Catalog.

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21 Julius Garfinkle & Co., Dept. Store
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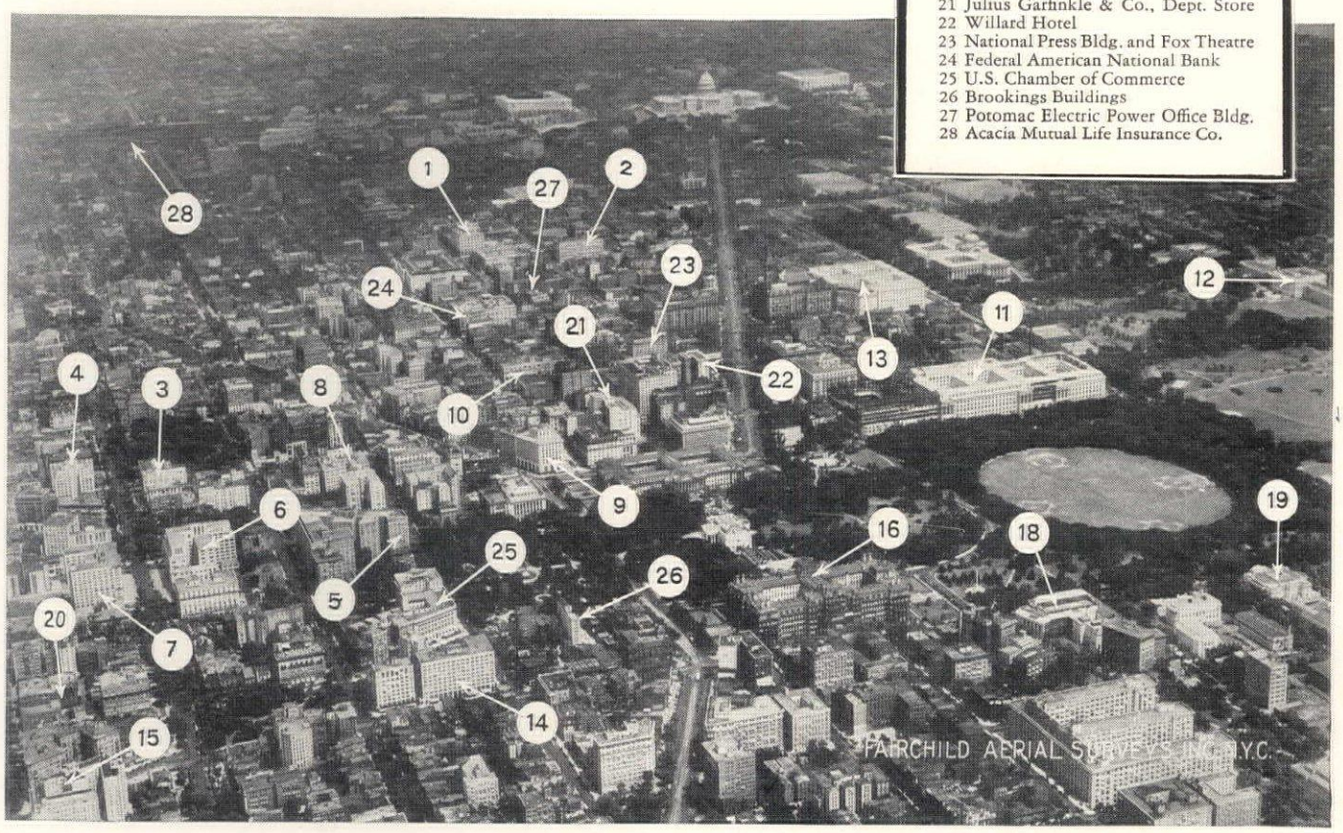

Aerial Photo of Washington, D. C.

THE illustration above shows only a small portion of Washington, D. C. Yet in this area alone, 27 buildings are Jennings-equipped.

Architects, engineers and owners in the nation's capital know that Jennings Vacuum Heating Pumps, Centrifugal Pumps, Sewage Pumps and Sump Pumps can be depended on for years of service with little if any attention.

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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page* 104

GREENHOUSES

William H. Lutton Company, 267 Kearney Ave., Jersey City, N. J.

Greenhouses of Quality. Booklet, 50 pp., 8½ x 11 ins. Illustrated. Conservatories making use of Lutton Patented Galvanized Steel V-Bar.

HARDWARE

P. & F. Corbin, New Britain, Conn.

Early English and Colonial Hardware. Brochure, 8½ x 11 ins. An important illustrated work on this type of hardware.

Locks and Builders' Hardware. Bound Volume, 486 pp., 8½ x 11 ins. An exhaustive, splendidly prepared volume.

Colonial and Early English Hardware. Booklet, 48 pp., 8½ x 11 ins. Illustrated. Data on hardware for houses in these styles.

Corbin Door Closers, 8½ x 11 ins. A description of the principles of design and performance of Corbin door closers.

Automatic Exit Fixtures, 8½ x 11 ins. A catalog of hardware for exit and entrance doors to auditoriums.

Cutler Mail Chute Company, Rochester, N. Y.

Cutler Mail Chute Model F. Booklet, 4 x 9¼ ins., 8 pp. Illustrated.

Richards-Wilcox Mfg. Co., Aurora, Ill.

Distinctive Garage Door Hardware. Booklet, 8½ x 11 ins., 66 pp. Illustrated. Complete information accompanied by data and illustrations on different kinds of garage door hardware.

Distinctive Elevator Door Hardware. Booklet, 90 pp., 10½ x 16 ins. Illustrated.

Russell & Erwin Mfg. Co., New Britain, Conn.

Hardware for the Home. Booklet, 24 pp., 3½ x 6 ins. Deals with residence hardware.

Door Closer Booklet. Brochure, 16 pp., 3½ x 6 ins. Data on a valuable detail.

Garage Hardware. Booklet, 12 pp., 3½ x 6 ins. Hardware intended for garage use.

Famous Homes of New England. Series of folders on old homes and hardware in style of each.

HEATING EQUIPMENT

American Blower Co., 6004 Russell St., Detroit, Mich.

Heating and Ventilating Utilities. A binder containing a large number of valuable publications, each 8½ x 11 ins., on these important subjects.

American Radiator Company, The, 40 West 40th St., N. Y. C.

Ideal Boilers for Oil Burning. Catalog 5½ x 8½ ins., 36 pp. Illustrated in 4 colors. Describing a line of Heating Boilers especially adapted to use with Oil Burners.

Corto—The Radiator Classic. Brochure, 5½ x 8½ ins., 16 pp. Illustrated. A brochure on a space-saving radiator of beauty and high efficiency.

Ideal Arcola Radiator Warmth. Brochure, 6¼ x 9½ ins. Illustrated. Describes a central all-on-one-floor heating plant with radiators for small residences, stores, and offices.

How Shall I Heat My Home? Brochure, 16 pp., 5¾ x 8½ ins. Illustrated. Full data on heating and hot water supply.

New American Radiator Products. Booklet, 44 pp., 5 x 7¾ ins. Illustrated. Complete line of heating products.

A New Heating Problem. Brilliantly Solved. Broadside, 4 pp., 10¾ x 15 ins. Illustrated. Data on the IN-AIRID invisible air valve.

In-Airid, the Invisible Air Valve. Folder, 8 pp., 3½ x 6 ins. Illustrated. Data on a valuable detail of heating.

The 999 ARCO Packless Radiator Valve. Folder, 8 pp., 3½ x 6 ins. Illustrated.

Bryant Heater & Mfg. Co., 17825 St. Clair Ave., Cleveland, Ohio.

Handbook on Heating Buildings with Bryant Gas Furnaces. Booklet, 12 pp., 8½ x 11 ins. Illustrated.

Handbook on Heating Water with Bryant Gas Boilers. Brochure, 20 pp., 8½ x 11 ins. Illustrated.

Handbook on Heating Buildings with Bryant Gas Boilers. Booklet, 20 pp., 8½ x 11 ins. Illustrated.

James B. Clow & Sons, 534 S. Franklin St., Chicago, Ill.

Clow Gasteam Vented Heating System. Brochure, 24 pp., 8½ x 11 ins. Illustrated. Deals with a valuable form of heating equipment for using gas.

HEATING EQUIPMENT—Continued

D.G.C. Trap & Valve Co., 1 East 43rd St., New York, N. Y.

Cryer Radiator Control Valve. Bulletin, 8½ x 11 ins. 12 pp. Illustrated. Explains operation and advantages of this radiator control valve on two-pipe vapor, vacuum or gravity steam systems.

C. A. Dunham Company, 450 East Ohio St., Chicago, Ill.

Dunham Radiator Trap. Bulletin 101, 8 x 11 ins., 12 pp. Illustrated. Explains working of this detail of heating apparatus.

Dunham Packless Radiator Valves. Bulletin 104, 8 x 11 ins., 8 pp. Illustrated. A valuable brochure on valves.

Dunham Return Heating System. Bulletin 109, 8 x 11 ins. Illustrated. Covers the use of heating apparatus of this kind.

Dunham Vacuum Heating System. Bulletin 110, 8 x 11 ins., 12 pp. Illustrated.

The Dunham Differential Vacuum Heating System. Bulletin 114. Brochure, 12 pp., 8 x 11 ins. Illustrated. Deals with heating for small buildings.

The Dunham Differential Vacuum Heating System. Bulletin 115. Brochure, 12 pp., 8 x 11 ins. Illustrated. Deals with heating for large buildings.

Dunham Built Dwyer Unit Heaters. Booklet, 31 pp., 8½ x 11 ins. Illustrated.

The Fulton Sylphon Company, Knoxville, Tenn.

Sylphon Temperature Regulators. Illustrated brochures, 8½ x 11 ins., dealing with general architectural and industrial applications; also specifically with applications of special instruments.

Sylphon Heating Specialties. Catalog No. 200, 192 pp., 3½ x 6¾ ins. Important data on heating.

Hoffman Specialty Company, Inc., 25 West 45th St., New York, N. Y.

Heat Controlled With the Touch of a Finger. Booklet, 46 pp., 5¾ x 8¾ ins. Illustrated.

How to Lock Out Air, the Heat Thief. Brochure, 48 pp., 5 x 7¼ ins. Illustrated.

Janette Manufacturing Company, 556 West Monroe Street, Chicago.

More Heat from Any Hot Water System on Less Fuel. Folder. 4 pp., 8½ x 11 ins. Illustrated. Deals with use of the "Hydrolator."

S. T. Johnson Co., Oakland, Calif.

Johnson Oil Burners. Booklet, 9 pp., 8½ x 11 ins. Illustrated.

Bulletin No. 4A. Brochure, 8 pp., 8½ x 11 ins. Illustrated. Data on different kinds of oil-burning apparatus.

Bulletin No. 31. Brochure, 8 pp., 8½ x 11 ins. Illustrated. Deals with Johnson Rotary Burner with Full Automatic Control.

Kewanee Boiler Corporation, Kewanee, Ill.

Kewanee on the Job. Catalog, 8½ x 11 ins., 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators. etc.

Catalog No. 78, 6 x 9 ins. Illustrated. Describes Kewanee Firebox Boilers with specifications and setting plans.

Catalog No. 79, 6 x 9 ins. Illustrated. Describes Kewanee power boilers and smokeless tubular boilers with specifications.

McQuay Radiator Corporation, 35 East Wacker Drive, Chicago, Ill.

McQuay Visible Type Cabinet Heater. Booklet, 4 pp., 8½ x 11 ins. Illustrated. Cabinets and radiators adaptable to decorative schemes.

McQuay Concealed Radiators. Brochure, 4 pp., 8½ x 11 ins. Illustrated.

McQuay Unit Heater. Booklet, 8 pp., 8½ x 11 ins. Illustrated. Gives specifications and radiator capacities.

Modine Mfg. Co., Racine, Wisc.

Modine Copper Radiation. Booklet, 28 pp. 8½ x 11 ins. Illustrated. Deals with industrial, commercial and domestic heating.

A Few Short Years. Folder. 4 pp. 8½ x 11 ins. Illustrated. Heating for garages.

Dairy Plant Heating. Folder. 4 pp., 8½ x 11 ins. Illustrated.
Industrial Heating. Folder. 4 pp., 8½ x 11 ins. Illustrated.
Modine Unit Heater. Folder. 6 pp., 8½ x 11 ins. Illustrated.

Nash Engineering Company, South Norwalk, Conn.

Bulletin 85. Booklet. 12 pp. 10¾ x 7½ ins. Illustrated in color. Describes construction and operation of the Jennings Return Line Vacuum Heating Pump.

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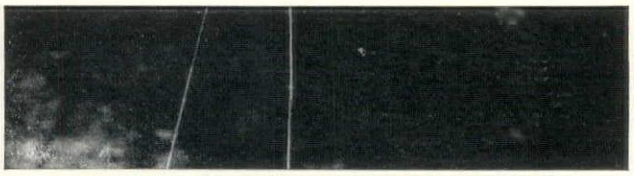

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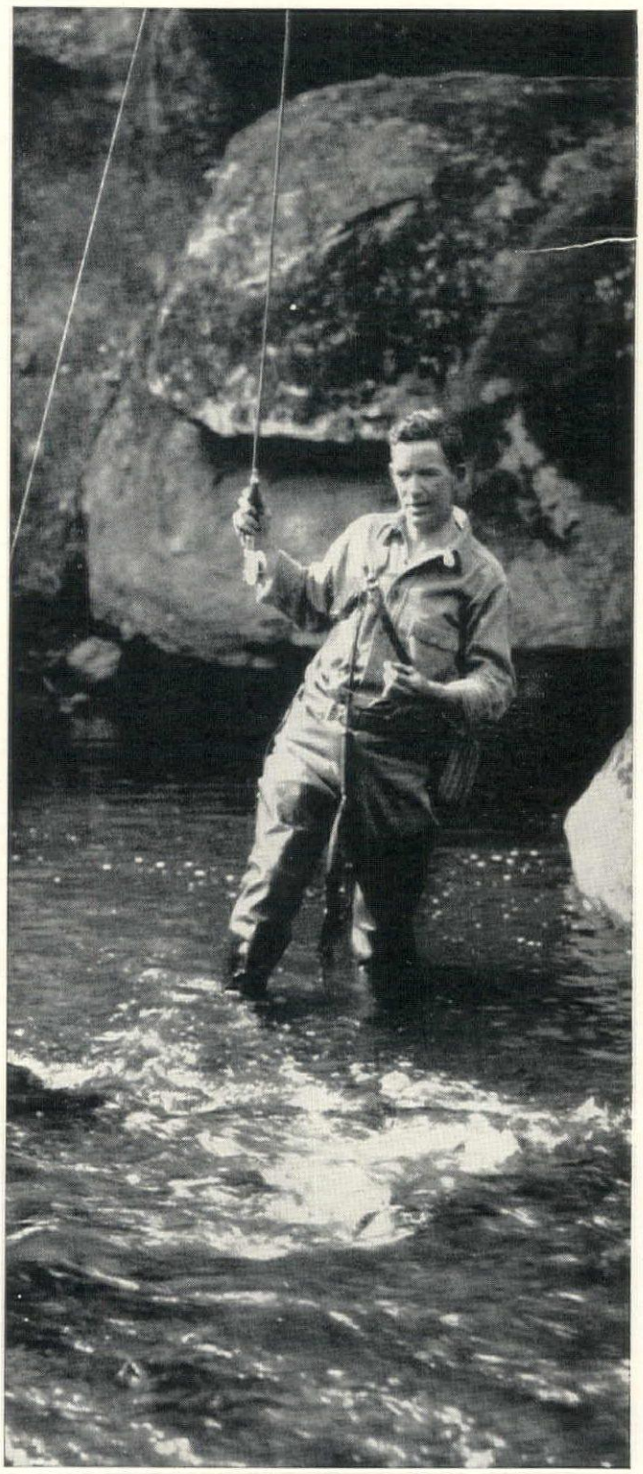

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The book "Acoustical Correction" gives all the interesting facts about Armstrong's Corkoustic. It will be sent you free if you address Armstrong Cork Company, 900 Concord Street, Lancaster, Pennsylvania.

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Armstrong's CORKOUSTIC

for the acoustical treatment of all buildings

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page* 106

HEATING EQUIPMENT—Continued

Bulletin 87. Brochure. 8 pp. 10¾ x 7½ ins. Illustrated in color. Deals with Sizes T and U Jennings Vacuum Heating Pump for 2500 and 5000 square feet equivalent direct radiation.

Bulletin 63. Booklet. 4 pp. 10¾ x 7½ ins. Illustrated. Describes in detail the Unit Type Motor Driven Jennings Condensation Pump.

National Radiator Corporation, Johnstown, Pa.

The Crimson Flame. Folder, 6 pp., 4½ x 7 ins. Illustrated.

Contento Brings Contentment to Your Home. Folder, 12 pp., 3½ x 6 ins. Illustrated.

National Jacketed Boiler. Folder, 4 pp., 8½ x 11 ins. Illustrated.
National Super-Smokeless Boiler. Folder, 4 pp., 8½ x 11 ins. Illustrated.

Aero, the National Radiator Sizes and Ratings. Booklet, 16 pp., 5 x 7⅞ ins. Illustrated.

Sarco Company, Inc., 183 Madison Ave., New York City, N. Y.

Steam Heating Specialties. Booklet, 6 pp., 6 x 9 ins. Illustrated. Data on Sarco Packless Supply Valves and Radiator Traps for vacuum and vapor heating systems.

Equipment Steam Traps and Temperature Regulations. Booklet, 6 pp., 6 x 9 ins. Illustrated. Deals with Sarco Steam Traps for hospital, laundry and kitchen fixtures and the Sarco Self-contained Temperature Regulation for hot water service tanks.

B. F. Sturtevant Company, Hyde Park, Boston, Mass.

Tempervane Heating Units. Catalog 363. Booklet, 44 pp., 8½ x 11 ins. Illustrated. Data on "Heating Every Corner with Maximum Economy."

U. S. Blower & Heater Corporation, Minneapolis, Minn.

Blowers, Heaters and Washers. Booklet, 64 pp., 8½ x 11 ins. Illustrated.

HOISTS, TELESCOPIC

Gillis & Geoghegan, Inc. 535 West Broadway, New York.

G & G Telescopic Hoist. Booklet. 24 pp. 8½ x 11 ins. Illustrated complete data on hoists.

Ash Removal. Folder. 8½ x 11 ins. Illustrated. Hoists for removing ashes from basements.

HOSPITAL EQUIPMENT

Bryant Electric Co., Bridgeport, Conn.

Hospital Signal Devices. Bulletin HS-622-RP. Complete information on hospital signal devices. Pull Control Type. 8½ x 10 ins. 46 pp.

Hospital Signal Devices. Bulletin HS-1023. Magnetic Control Type. 8½ x 10 ins. 26 pp.

The Frink Co., Inc., 369 Lexington Ave., New York City.

Catalog 426. 7 x 10 ins., 16 pp. A booklet illustrated with photographs and drawings, showing the types of light for use in hospitals, as operating table reflectors, linolite and multilite concentrators, ward reflectors, bed lights and microscopic reflectors, giving sizes and dimensions, explaining their particular fitness for special uses.

The International Nickel Company, 67 Wall St., New York, N. Y.

Hospital Applications of Monel Metal. Booklet, 8½ x 11½ ins., 16 pp. Illustrated. Gives types of equipment in which Monel Metal is used, reasons for its adoption, with sources of such equipment.

INCINERATORS

Josam Mfg. Co., Michigan City, Ind.

Josam-Graver Incinerators. Folder, 4 pp., 8½ x 11 ins. Illustrated.

INSULATION

Armstrong Cork & Insulation Co., Lancaster, Pa.

The Insulation of Roofs with Armstrong's Corkboard. Booklet. Illustrated. 7½ x 10½ ins., 32 pp. Discusses means of insulating roofs of manufacturing or commercial structures.

Insulation of Roofs to Prevent Condensation. Illustrated booklet, 7½ x 10½ ins., 36 pp. Gives full data on valuable line of roof insulation.

Filing Folder for Pipe Covering Data. Made in accordance with A. I. A. rules.

The Cork-lined House Makes a Comfortable Home. 5 x 7 ins. 32 pp. Illustrated.

INSULATION—Continued

Armstrong's Corkboard. Insulation for Walls and Roofs of Buildings. Booklet, 66 pp., 9½ x 11¾ ins. Illustrates and describes use of insulation for structural purposes.

JOISTS

Kalman Steel Company, Chicago, Ill.

Steel Joists. Brochure, 20 pp., 8½ x 11 ins. Joists and accessories. Firesafe Floor and Roof Construction. Booklet, 8 pp., 8½ x 11 ins. Joists, lath and accessories.

KITCHEN EQUIPMENT

The International Nickel Company, 67 Wall St., New York, N. Y.

Hotels, Restaurants and Cafeteria Applications of Monel Metal. Booklet, 8½ x 11 ins., 32 pp. Illustrated. Gives types of equipment in which Monel Metal is used, with service data and sources of equipment.

LABORATORY EQUIPMENT

Alberene Stone Co., 153 West 23rd Street, New York City.

Booklet, 8¾ x 11¼ ins., 26 pp. Stone for laboratory equipment, shower partitions, stair treads, etc.

Duriron Company, Dayton, Ohio.

Duriron Acid, Alkali and Rust-proof Drain Pipe and Fittings. Booklet, 8½ x 11 ins., 20 pp. Full details regarding a valuable form of piping.

LATH, METAL AND REINFORCING

Kalman Steel Company, Chicago, Ill.

Firesafe Building Products. Booklet, 20 pp., 8½ x 11 ins. Lath, fireplace accessories, beads, etc.

Milcor Steel Co., Milwaukee.

The Milcor Manual. Booklet, 96 pp., 8½ x 11 ins. Illustrated. Data on metal lath and similar materials.

Milcor Metal Ceiling Catalog. Booklet, 288 pp., 8½ x 11 ins. Illustrated. Data on metal ceiling and wall construction.

National Steel Fabric Co., Pittsburgh, Pa.

Better Walls for Better Homes. Brochure, 16 pp., 7¾ x 11¼ ins. Illustrated. Metal lath, particularly for residences.

Steeltex for Floors. Booklet, 24 pp., 8½ x 11 ins. Illustrated.

Combined reinforcing and form for concrete or gypsum floors and roofs.

Steeltex Data Sheet No. 1. Folder, 8 pp., 8½ x 11 ins. Illustrated. Steeltex for floors on steel joists with round top chords.

Steeltex Data Sheet No. 2. Folder, 8 pp., 8½ x 11 ins. Illustrated. Steeltex for floors on steel joists with flat top flanges.

Steeltex Data Sheet No. 3. Folder, 8 pp., 8½ x 11 ins. Illustrated. Steeltex for folders on wood joists.

Truscon Steel Company, Youngstown, Ohio.

Truscon ¾-inch Hy-Rib for Roofs, Floors and Walls. Booklet, 8½ x 11 ins., illustrating Truscon ¾-inch Hy-Rib as used in industrial buildings. Plates of typical construction. Progressive steps of construction. Specification and load tables.

LAUNDRY MACHINERY

The American Laundry Machinery Company, Norwood Station, Cincinnati, Ohio.

The Laundry in the Hotel, Hospital, School, Club, Office Building . . . even in the large Residence. Brochure, 25 pp., 8½ x 11 ins. Arranged in convenient file folder. Illustrated. Contains blue prints of prominent laundry installations.

Troy Laundry Machinery Co., Inc., 9 Park Place, New York City.

Laundry Machinery for Large Institutions. Loose-Leaf booklet, 50 pp., 8½ x 11 ins. Illustrated.

Laundry Machinery for Small Institutions. Loose-leaf brochure, 50 pp., 8½ x 11 ins. Illustrated.

Accessory Equipment for Institutional Laundries. Leather bound book, 50 pp., 8½ x 11 ins. Illustrated.

Dry Cleaning Equipment for Institutional Purposes. Brochure, 50 pp., 8½ x 11 ins. Illustrated.

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Carnegie Engineers are at your service to discuss with you the unique advantages of C B Sections.

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CB SECTIONS

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LIGHTING EQUIPMENT

The Frink Co., Inc., 369 Lexington Ave., New York, N. Y.

Catalog 415, 8½ x 11 ins., 46 pp. Photographs and scaled cross-sections. Specialized bank lighting, screen and partition reflectors, double and single desk reflectors and Polaralite Signs.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

Industrial Lighting Equipment. Booklet, 32 pp., 8½ x 11 ins. Illustrated.

Commercial Lighting. Brochure, 24 pp., 8½ x 11 ins. Illustrated. Airport and Floodlighting Equipment. Booklet, 20 pp., 8½ x 11 ins. Illustrated.

MAIL CHUTES

Cutler Mail Chute Company, Rochester, N. Y.

Cutler Mail Chute Model F. Booklet, 4 x 9¼ ins., 8 pp. Illustrated.

MANTELS

Henry Klein & Co., Inc. 40-46 West 23rd Street, New York.

Driwood Mantels. Booklet. 12 pp. 8½ x 11 ins. Illustrated. Fine line of eighteenth century English and American mantels.

MARBLE

The Georgia Marble Company, Tate, Ga.; New York Office, 1328 Broadway.

Why Georgia Marble Is Better. Booklet, 3⅜ x 6 ins. Gives analysis, physical qualities, comparison of absorption with granite, opinions of authorities, etc.

Convincing proof. 3⅜ x 6 ins., 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of Architects and Sculptors.

Hurt Building, Atlanta; Senior High School and Junior College, Muskegon, Mich. Folders, 4 pp., 8½ x 11 ins. Details.

METALS

The International Nickel Company, 67 Wall St., New York N. Y.

Monel Metal Primer. 8 folders, 4 pp., 8½ x 11 ins. Illustrated. Valuable data on use of monel in kitchens, laundries, etc.

MILLWORK

Klein & Co., Inc., Henry, 11 East 37th St., New York, N. Y.

Two Driwood Interiors. Folder, 4 pp., 6¼ x 9 ins. Illustrated. Use of moulding for paneling walls.

A New Style in Interior Decoration. Folder, 4 pp., 6¼ x 9 ins. Illustrated. Deals with interior woodwork.

Driwood Period Mouldings in Ornamented Wood. Booklet, 28 pp., 8½ x 11 ins. Illustrated.

How Driwood Period Mouldings in Ornamented Wood Set a New Style in Decoration. Folder.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES

Minwax Company, Inc., 11 West 42nd St., New York.

Color Card and Specifications for Minwax Brick and Cement Coating. Folder, 4 pp., 8½ x 11 ins. Illustrated.

PAINTS, STAINS, VARNISHES AND WOOD FINISHES—Cont.

National Lead Company, 111 Broadway, New York, N. Y.

Handy Book on Painting. Book, 5½ x 3¾ ins., 100 pp. Gives directions and formulæ for painting various surfaces of wood, plaster, metals, etc., both interior and exterior.

Red Lead in Paste Form. Booklet. 6¼ x 3½ ins., 16 pp. Illustrated. Directions and formulæ for painting metals.

Came Lead. Booklet, 6 x 8¾ ins., 12 pp. Illustrated. Describes various styles of lead cames.

PARTITIONS

Circle A. Products Corporation, New Castle, Ind.

Circle A. Partitions Sectional and Movable. Brochure. Illustrated. 8½ x 11¾ ins., 32 pp. Full data regarding an important line of partitions, along with Erection Instructions for partitions of three different types.

Irving Hamlin, Evanston, Ill.

Hamlinized Folding Partitions Made from Hamlin's Evanston Soundproof Doors, Sectional and Movable. Folder, 4 pp., 8½ x 11 ins. Illustrated.

Hauserman Company, E. F., Cleveland, Ohio.

Movable Steel Partitions for sub-dividing office and industrial space. Folders on complete line, 8½ x 11, giving full data on the different types of steel partitions with details, elevations and specifications. Also 40-page Architects' Portfolio AIA—28A3, containing 20 full page plates of practical office layouts.

Hollow Steel Standard Partitions. Various folders, 8½ x 11 ins. Illustrated. Give full data on different types of steel partitions, together with details, elevations and specifications.

Henry Klein & Co., 25 Grand Street, Elmhurst, L. I., N. Y.

Telesco Partition. Catalog, 8¼ x 11 ins., 14 pp. Illustrated. Shows typical offices laid out with Telesco partitions, cuts of finished partition units in various woods. Gives specifications and cuts of buildings using Telesco.

Detailed Instructions for Erecting Telesco Partitions. Booklet, 24 pp., 8½ x 11 ins. Illustrated. Complete instructions, with cuts and drawings, showing how easily Telesco Partition can be erected.

Improved Office Partition Co., 25 Grand St., Elmhurst, L. I., N. Y. (See Henry Klein & Co.)

Richards-Wilcox Mfg. Co., Aurora, Ill.

Partitions. Booklet, 7 x 10 ins., 32 pp. Illustrated. Describes complete line of track and hangers for all styles of sliding parallel, accordion and flush-door partitions.

Telesco Office Partition, 25 Grand St., Elmhurst, L. I., N. Y. (See Henry Klein & Co.)

J. G. Wilson Corporation, 11 East 38th St., New York City, N. Y. Sectionfold and Rolling partitions also Light Retarding Rolling Shutters. Thirty-two page catalog with illustrations, specification details, etc.

PIPE

The American Brass Company, Waterbury, Conn.

Bulletin B-1, Brass Pipe for Water Distribution. A.I.A. File No. 29B4. 8½ x 11 ins., 32 pp. Illustrated. Discusses the economic advantages of permanent plumbing and the suitability of Anaconda 67 Brass Pipe for normally corrosive waters, and Anaconda 85 Red-Brass Pipe for highly corrosive waters. Contains schedule of weights and sizes of seamless brass and copper pipe, recommended specifications and installation suggestions.

American Rolling Mill Company, Middletown, Ohio.

How ARMCO Dredging Products Cut Costs. Booklet, 16 pp., 6 x 9 ins. Data on dredging pipe.

Bethlehem Steel Company, Bethlehem, Pa.

Bethlehem Wrought Steel Pipe, Catalog P. Booklet, 20 pp., 4¼ x 7¼ ins. Illustrated.

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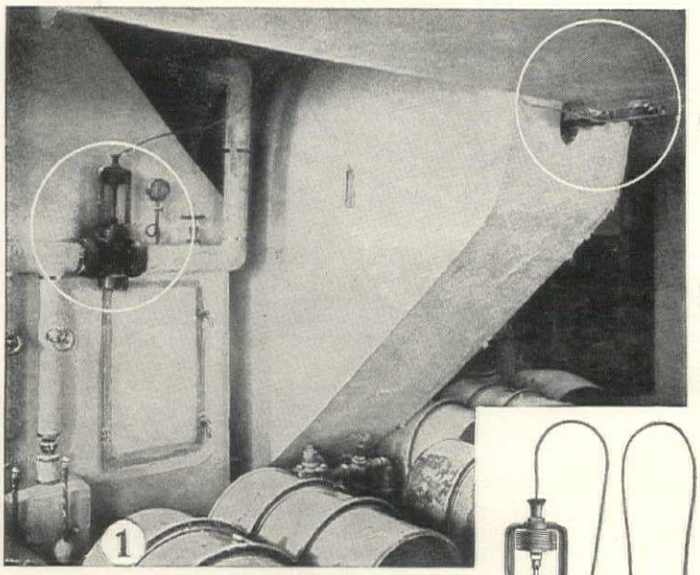


A No. 942 Sylphon Temperature Regulator on air conditioning equipment in a large candy factory.

Sylphon TRADE MARK No. 942

SEPARABLE TRANSMISSION TYPE REGULATOR

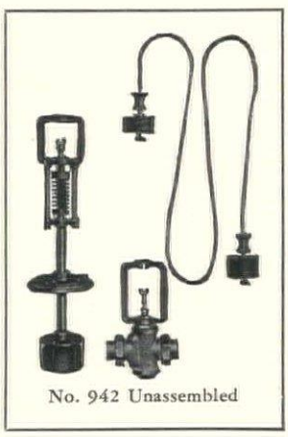
Provides Accurate Temperature Control of Air Conditioning • Equipment •

No. 942 Assembled

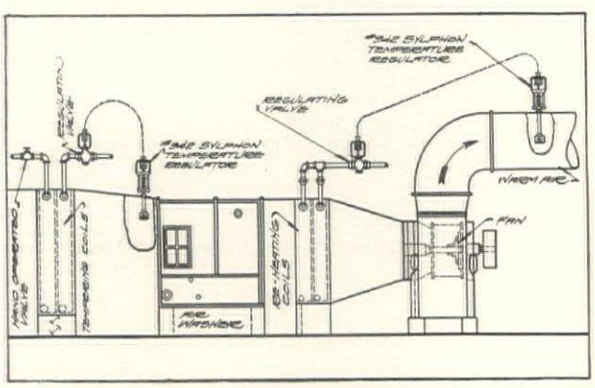
Specified for many years by leading architects and engineers, for the automatic control of temperatures of *indirect heating stacks, warm air ducts* or *fan and blower heating systems,* the Sylphon No. 942 Regulator has fully justified their recommendations in a long list of installations.

Aside from the fact that it may be easily and quickly adjusted for any temperature within its range, the outstanding and exclusive features of this No. 942 Regulator, are:

1. Valve may be located at some distance from the thermostatic head.
2. The Regulator may be installed in any position—from top, bottom or side of duct.
3. Thermostatic head is readily removed from the stem, allowing the hole cut through duct or chamber to be only large enough for ¾" pipe.
4. All the thermostatically active part of regulator is located within duct or chamber and operation of instrument is unaffected by temperature changes surrounding the transmission unit.
5. Separable transmission unit assures great convenience in installing.



No. 942 Unassembled



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SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—*Continued from page* 110

PIPE—Continued

Clow & Sons, James B., 534 S. Franklin St., Chicago, Ill.

Catalog A. 4 x 16½ ins., 700 pp. Illustrated. Shows a full line of steam, gas and water works supplies.

Duriron Company, Dayton, Ohio.

Duriron Acid, Alkali, Rust-proof Drain Pipe and Fittings. Booklet, 20 pp., 8½ x 11 ins. Illustrated. Important data on a valuable line of pipe.

Maurice A. Knight, Akron, Ohio.

Knightware in the Princeton Chemical Laboratory. Booklet, 16 pp., 6¾ x 8½ ins. Illustrated.

National Tube Co., Frick Building, Pittsburgh, Pa.

"National" Bulletin No. 2. Corrosion of Hot Water Pipe, 8½ x 11 ins., 24 pp. Illustrated. In this bulletin is summed up the most important research dealing with hot water systems. The text matter consists of seven investigations by authorities on this subject.

"National" Bulletin No. 3. The Protection of Pipe Against Internal Corrosion, 8½ x 11 ins., 20 pp. Illustrated. Discusses various causes of corrosion, and details are given of the deactivating and deaereating systems for eliminating or retarding corrosion in hot water supply lines.

"National" Bulletin No. 25. "National" Pipe in Large Buildings. 8½ x 11 ins., 88 pp. This bulletin contains 254 illustrations of prominent buildings of all types, containing "National" Pipe, and considerable engineering data of value to architects, engineers, etc.

Modern Welded Pipe. Book of 88 pp., 8½ x 11 ins., profusely illustrated with halftone and line engravings of the important operations in the manufacture of pipe.

Walworth Company, Statler Office Building, Boston, Mass.

Approved Valves and Fittings for Fire Lines in New York. Folder, 6 pp., 8½ x 11 ins. Illustrated.

C. N. I. Pipe Manual. Booklet, 18 pp., 4½ x 7½ ins. Illustrated.

PLUMBING EQUIPMENT

Clow & Sons, James B., 534 S. Franklin St., Chicago, Ill.

Catalog M. 9¼ x 12 ins., 184 pp. Illustrated. Shows complete line of plumbing fixtures for Schools, Railroads and Industrial Plants.

Duriron Company, Dayton, Ohio.

Duriron Acid, Alkali and Rust-Proof Drain Pipe and Fittings. Booklet 8½ x 11 ins., 20 pp. Full details regarding a valuable form of piping.

Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago, Ill.

Watrous Patent Flush Valves, Duojet Water Closets, Liquid Soap Fixtures, etc. 8½ x 11 ins., 136 pp., loose-leaf catalog, showing roughing-in measurements, etc.

Speakman Company, Wilmington, Del.

Catalog K. Booklet, 150 pp., 8½ x 10⅞ ins. Illustrated. Data on showers and equipment details.

PNEUMATIC TUBE SYSTEMS

G & G Atlas Systems, Inc., 544 West Broadway, New York.

12 pp., 8½ x 11. Illustrated booklet of tube systems for retail stores and other buildings.

4 pp., 8½ x 11. Data Sheet showing schematic diagrams for hotel, bank, factory and wholesale buildings, table of sizes, space requirements and preliminary layout steps. A. I. A. 35h21.

PUMPS

C. A. Dunham Co., 450 East Ohio Street, Chicago, Ill.

Dunham Vacuum Pump. Booklet, 16 pp., 8½ x 11 ins. Illustrated.

Nash Engineering Company, South Norwalk, Conn.

Bulletin 52. Brochure. 6 pp., 10½ x 7¾ ins. Illustrated in color. Devoted to Jennings Standard Centrifugal Pumps for house service, boosting city water pressure to supply top stories, for circulating warm water, etc.

Bulletin 97. Booklet. 16 pp., 10½ x 7¾ ins. Illustrated in color. Describes the design, construction and operation of the Jennings Suction Sump Pump.

Bulletin 11. Brochure. 8 pp., 10½ x 7¾ ins. Illustrated in color. Deals with Nash Hytor Vacuum Pumps for air and gases.

REFRIGERATION

The Fulton Syphon Company, Knoxville, Tenn.

Temperature Control of Refrigeration Systems. Booklet, 8 pp., 8½ x 11 ins. Illustrated. Deals with cold storage, chilling of water, etc.

REINFORCED CONCRETE—See also Construction, Concrete

Kalman Steel Company, Chicago, Ill.

Building for Permanence. Booklet, 8 pp., 8½ x 11 ins. Reinforced concrete products.

Truscon Steel Company, Youngstown, Ohio.

Shearing Stresses in Reinforced Concrete Beams. Booklet, 8½ x 11 ins., 12 pp.

ROOFING

Johns-Manville Corporation, New York.

The New Book of Roofs. Brochure, 24 pp., 8½ x 11 ins. Illustrated. Roofing from the Architect's point of view.

Ludowici-Celadon Company, 104 So. Michigan Ave., Chicago, Ill.

"Ancient" Tapered Mission Tiles. Leaflet, 8½ x 11 ins., 4 pp. Illustrated. For architects who desire something out of the ordinary this leaflet has been prepared. Describes briefly the "Ancient" Tapered Mission Tiles, hand-made with full corners and designed to be applied with irregular exposures.

Milcor Steel Co., Milwaukee.

Milcor Architectural Sheet Metal Guide. Booklet. 72 pp., 8½ x 11 ins. Illustrated. Metal tile roofing, skylights, ventilators, etc.

Milcor Sheet Metal Handbook. Brochure. 128 pp., 8½ x 11 ins. Illustrated. Deals with rain-carrying equipment, etc.

SEWAGE DISPOSAL

Nash Engineering Company, South Norwalk, Conn.

Bulletin 67. Booklet. 16 pp. 10¾ x 7½ ins. Illustrated in color. Describes Type A Jennings Sewage Ejector for handling Unscreened sewage and raising it from basements below sewer level.

Bulletin 103. Brochure. 16 pp. 10¾ x 7½ ins. Illustrated in color. Deals with small size Type B Jennings Sewage Ejector.

SCREENS

American Brass Co., The, Waterbury, Conn.

Facts for Architects About Screening. Illustrated folder, 9½ x 11¾ ins., giving actual samples of metal screen cloth and data on fly screens and screen doors.

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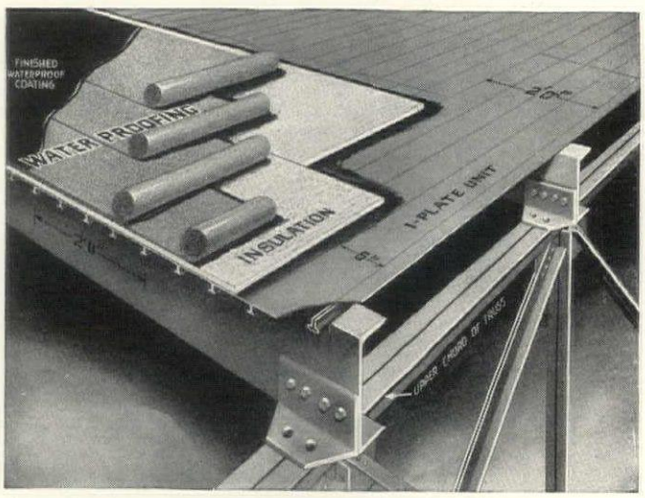

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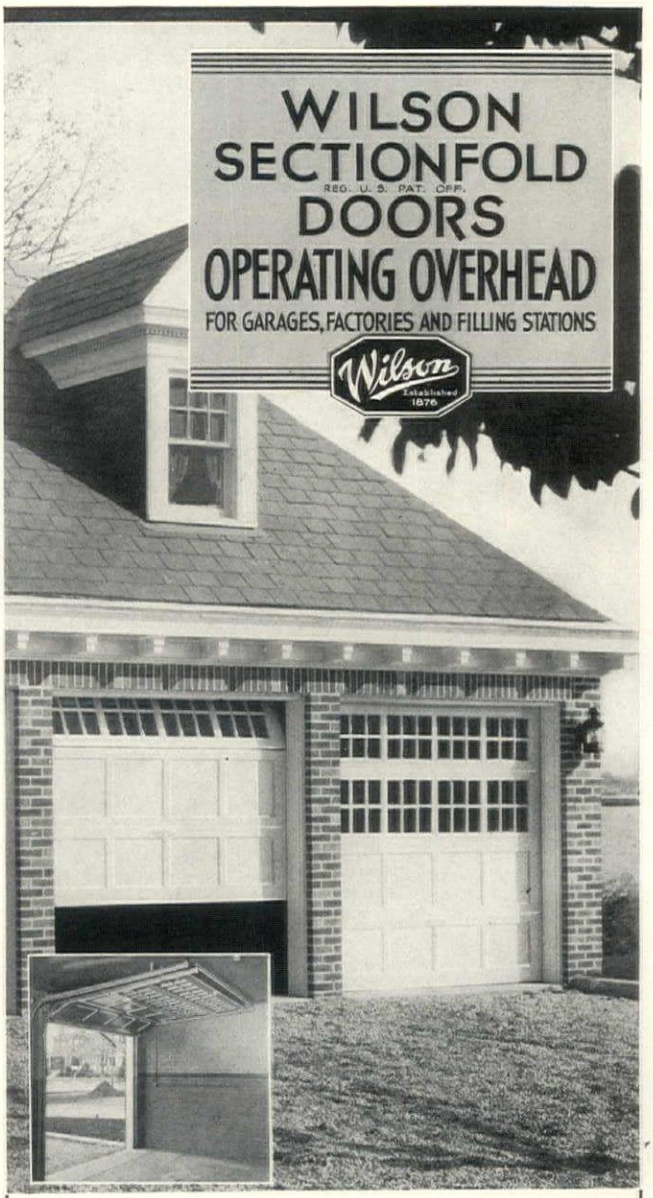

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Steel Frame House Company, Pittsburgh, Pa. (Subsidiary of McClintic-Marshall Corp.)

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Steel Framing for Gasoline Service Stations. Brochure, 8 pp., 8½ x 11 ins. Illustrated.

Steel Frame Standard Gasoline Service Stations. Booklet, 8 pp., 8½ x 11 ips. Illustrated. Three standard designs of stations.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

The Arc Welding of Structural Steel. Brochure, 32 pp., 8½ x 11 ins. Illustrated. Deals with an important structural process.

STONE, BUILDING

Indiana Limestone Company, Bedford, Ind.

ILCO Specification Manual. Standard Specifications for the cutting and setting of Indiana Limestone. 8½ x 11 ins., 24 pp.

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Volume 4. Series B. New Edition, 8½ x 11 ins., 80 pp. Illustrated. Indiana Limestone as used in Banks.

Volume 12. Series B. Distinctive Homes of Indiana Limestone. 8½ x 11 ins., 48 pp. Illustrated.

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Natco Vitritile Bulletin No. 164. 40 pp., 8½ x 11 ins. Illustrated. Shows color charts, sizes and shapes, actual installations, etc.

Natco Header Backer Tile Bulletin. 8½ x 11 ins. 4 pp. Illustrated.

Natco Unibacker Tile Bulletin. 8½ x 11 ins. 4 pp. Illustrated.

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Hanley Company, Bradford, Pa.

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C. A. Dunham Co., 450 East Ohio St., Chicago, Ill.

The Dunham Packless Radiator Valve. Brochure, 12 pp., 8 x 11 ins. Illustrated. Data on an important type of valve.

Jenkins Brothers, 80 White Street, New York.

Office Buildings Yesterday and Today. Folder, 8½ x 11 ins. Illustrated. Valves for use in office buildings.

Walworth Company, Statler Office Building, Boston, Mass.

Walworth Valves, Fittings and Tools, Catalog 88. Bound Volume giving data on a wide variety of details.

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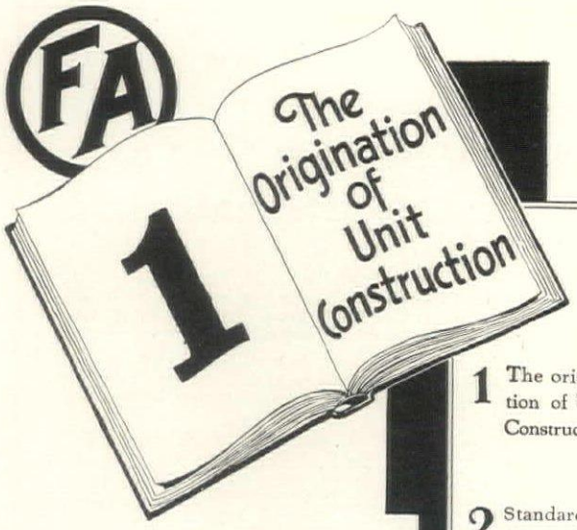

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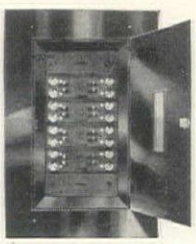

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VENETIAN BLINDS

Columbia Mills, 225 Fifth Avenue, New York.
A Manual for Architects. Booklet, 6 pp., 8½ x 11 ins. Illustrated.

VENTILATION

American Blower Co., Detroit, Mich.
American H. S. Fans. Brochure, 28 pp., 8½ x 11 ins. Data on an important line of blowers.

Duriron Company, Dayton, Ohio.
Acid-proof Exhaust Fans. Folder, 8 x 10½ ins., 8 pp. Data regarding fans for ventilation of laboratory fume hoods.
Specification Form for Acid-proof Exhaust Fans. Folder, 8 x 10½ ins.

Herman Nelson Corporation, Moline, Ill.
Univent Ventilation; The Modern Safeguard of Youth in the Schoolroom. Booklet, 63 pp., 8½ x 11 ins. Illustrated.
Herman Nelson System of Ventilation. Brochure. 103 pp., 8½ x 11 ins. Illustrated.

WATERPROOFING

Minwax Company, Inc., 11 West 42nd St., New York.
Waterproofing Stadia. Folder, 4 pp., 8½ x 11 ins. Illustrated.
Transparent Waterproofings for All Masonry Walls and Surfaces. Folder, 4 pp., 8½ x 11 ins. Illustrated.
Data Sheet on Membrane Waterproofing. Folder, 4 pp., 8½ x 11 ins. Illustrated.

WEATHER STRIPS

Athey Company, 6035 West 65th St., Chicago, Ill.
The Only Weatherstrip with a Cloth to Metal Contact. Booklet, 16 pp., 8½ x 11 ins. Illustrated. Data on an important type of weather stripping.

WINDOW GLASS

Pittsburgh Plate Glass Company, Grant Building, Pittsburgh, Pa.
Pennvernon Window Glass With the New Flatter Surface. Booklet, 16 pp., 8½ x 11 ins. Illustrated.

WINDOWS

William Bayley Co., 147 North Street, Springfield, Ohio.
Bayley Pivoted Windows. Booklet, 24 pp., 8½ x 11 ins. Illustrated. Sections, hardware, and other details, and illustrations of installations.

Detroit Steel Products Co., 2250 E. Grand Boulevard, Detroit.
Fenestra Blue Book. Brochure, 75 pp., 8½ x 11 ins. Illustrated. Data on steel windows.

The Kawneer Company, Niles, Michigan.
Circular, 8½ x 11 ins., with A.I.A. File No. featuring full size details and specifications of Sealair In-swinging windows. The above to be furnished in non-ferrous metals and steel.

WINDOWS, CASEMENT

Detroit Steel Products Co., 2250 E. Grand Boulevard, Detroit.
Fenestra Casements. Booklet, 14 pp., 8½ x 11 ins. Illustrated. Discusses casements, particularly for residences.

WINDOWS, CASEMENT—Continued

Fenestra Screen Casements. Brochure, 16 pp., 8½ x 11 ins. Illustrated.
Decorating With Casements. Booklet, 18 pp., with inserts in color 6 x 8½ ins. Deals with use of decorations, particularly draperies, with casement windows.

Richards-Wilcox Mfg. Co., Aurora, Ill.
Casement Window Hardware. Booklet, 24 pp., 8½ x 11 ins. Illustrated. Shows typical installations, detail drawings, construction details, blue-prints if desired. Describes AIR-way Multifold Window Hardware.
Architectural Details. Booklet, 8½ x 11 ins., 16 pp. Tables of specifications and typical details of different types of construction.
List of Parts for Assembly. Booklet, 8½ x 11 ins., 16 pp. Full lists of parts for different units.

WINDOW SCREENS

William Bayley Co., 147 North Street, Springfield, Ohio.
Bayley Pivoted Windows Screened. Booklet, 8 pp., 8½ x 11 ins. Data on screening and window ventilation.

WINDOWS, STEEL AND BRONZE

William Bayley Co., 147 North Street, Springfield, Ohio.
Bayley Steel Window Inserts. Brochure, 8 pp., 8½ x 11 ins. Illustrated. Suggestions on correct use of inserts.

Truscon Steel Company, Youngstown, Ohio.
Drafting Room Standards. Book, 8½ x 11 ins., 120 pages of mechanical drawings showing drafting room standards, specifications and construction details of Truscon Steel Windows, Steel Lintels, Steel Doors and Mechanical Operators.
Truscon Solid Steel Double-Hung Windows. 24 pp. Booklet, 8½ x 11 ins. Containing illustrations of buildings using this type of window. Designs and drawings of mechanical details.
Continuous Steel Windows and Mechanical Operators. Catalog 126. Booklet, 32 pp., 8½ x 11 ins. Illustrated.

WOOD—See also Millwork

American Walnut Mfrs. Association, 618 So. Michigan Boulevard, Chicago, Ill.
American Walnut. Booklet 7 x 9 ins., 46 pp. Illustrated. A very useful and interesting little book on the use of walnut in Fine Furniture with illustrations of pieces by the most notable furniture makers from the time of the Renaissance down to the present.
American Walnut for Interior Woodwork and Paneling. 7 x 9 ins. Illustrated. Discusses interior woodwork, giving costs, specifications of a specimen room, the different figures in Walnut wood, Walnut floors, finishes, comparative tests of physical properties and the advantages of American Walnut for woodwork.

WOOD FINISH

Minwax Company, Inc., 11 West 42nd St., New York.
Color card and specification for Minwax Flat Finish. Folder, 4 pp., 8½ x 11 ins. Illustrated. Deals with a penetrative, preservative stain finish giving stain and soft wax effect.

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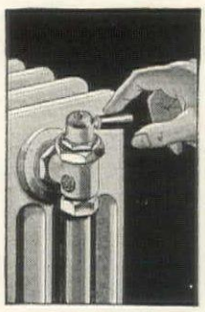

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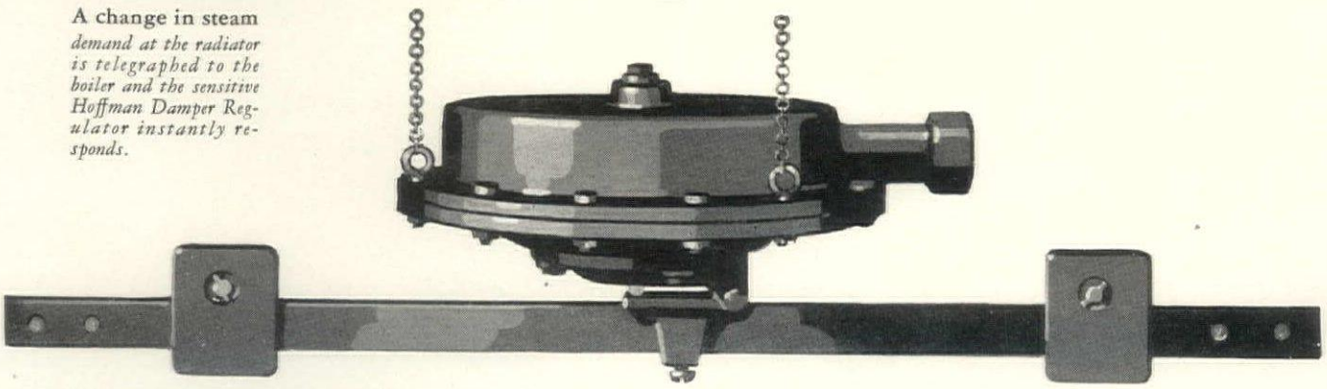

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"FINGER Touch Control" and economy of operation in a Hoffman Controlled Heat System is made possible by an extremely sensitive Damper Regulator. A touch of the finger to the Hoffman Modulating Valve at the radiator, in a demand for more or less heat, instantly causes the Regulator to automatically brighten-up or check the fire. No more fuel is burned than is required to produce the heat needed at any given time.

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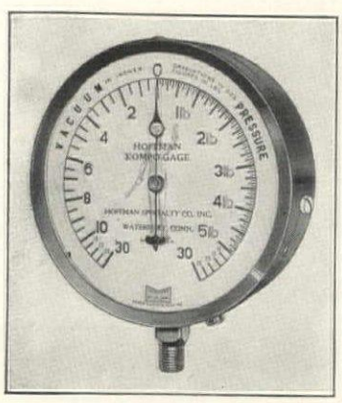
The Hoffman Damper Regulator is compensated or balanced like a pair of scales. Slight variations in pressure are multiplied by a large diameter rubber diaphragm into sufficient power to operate the drafts. This Regulator is truly a guardian of the fuel bill.

All the facts on Hoffman Controlled Heat have been specially compiled for architects, engineers and heating contractors, in an interesting booklet. A request brings it to you without obligation. Hoffman Specialty Company, Inc., Dept. E.F-30, Waterbury, Conn.



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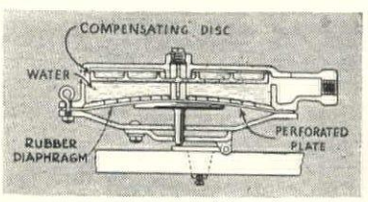
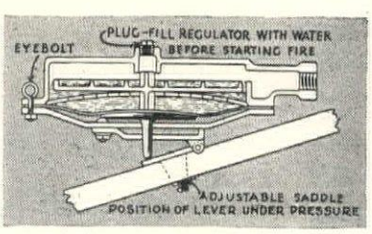
This instrument when installed on the boiler accurately indicates vapor pressure being generated, or shows whether plant is operating under vacuum conditions. It eliminates all guesswork from firing the boiler — resulting in marked economy through more efficient firing.



Position of Regulator not under pressure

When not under pressure, the compensating plate is in its uppermost position, the bottom of the plate being in line with bottom of inlet. The space above diaphragm is filled with water up to the inlet. Weights on the lever are to be so placed that they will hold the diaphragm against the perforated plate. Drafts are held open until the pre-determined pressure is generated. Then diaphragm action, transmitted to the lever, closes drafts.



Position of Regulator under pressure

Here drafts are closed. Vapor pressure has overcome upward force exerted by the weights on lever arm and forced diaphragm downward. The water on the diaphragm lowers with it; and likewise the compensating plate, until top of the plate is level with bottom of the inlet, thus preventing any addition to the water above the diaphragm. With a slight drop in vapor, the weights force the diaphragm upward and drafts are opened.

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WE present this fair, dependable and simple measure for comparing the cost of heat—C. P. S. F.—Cost Per Square Foot of cast iron column radiation. You figure the amount of radiation required to properly heat the building you are planning. Using C. P. S. F., it is an easy matter to find what it has cost to heat buildings of similar types—even though they vary in size and construction, C. P. S. F. gives you a standard basis of comparison.

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REVIEWS OF MANUFACTURERS' PUBLICATIONS

RODDIS LUMBER & VENEER COMPANY, Marshfield, Wis. "Roddis Flush Doors."

The "laminated" or "built-up" doors which are now being widely used because of their merits owe their excellence to carefully organized procedure. The Roddis Lumber & Veneer Company has for many years been among the leaders of manufacturers of such doors, and in its publications the firm gives an account of their production. "The Roddis Flush Door has its beginning in the great Northern forests of growing, towering timber owned and operated by Roddis. Here Roddis experts inspect and select the trees each year that are best matured for Roddis high degree of uniform quality. Roddis workmen fell these trees, and hew into logs their giant trunks. Then, on the Roddis railroad, the freshly cut logs are conveyed to the Roddis mills. A significant detail deserves emphasis here, for it is the first fundamental which guarantees the permanent stability of each Roddis Flush Door when completed, finally finished, and put into service. Nearly two years elapse between the time Roddis Flush Door lumber comes from the sawmill and when the completed door is delivered to the purchaser. Each piece of Roddis Flush Door lumber is air dried and seasoned for more than a year. It is then re-sawed into narrow strips, re-piled and racked, and continues to be air seasoned for another period of months. The lumber is then brought into the vapor kilns, where it is steamed and returned to its original form, after which it is scientifically dried down to contain only 2 per cent of moisture. Following this process, the lumber is again removed to special air sheds, where it remains for a period of weeks, equalizing it to normal humidity, in final preparation for the Roddis Flush Door construction. Thus the lumber, during the long period of practically two years, is prepared and conditioned for its final purpose. Each board is air-dried and again scientifically dry-treated and again air-dried,—relaxing its very fibers, to kink and twist to its natural growth; and by that long-drawn seasoning process and severely complete scientific method becomes fully conditioned to withstand the strains and abuses which a door must endure in service. This is fundamentally why Roddis Flush Doors continue in service without defect or necessity of replacement, to the complete satisfaction of Roddis Door users. Moreover, this Roddis thoroughness of preparation assures a uniform run of lumber for every door, laboratory tests of each lot of lumber exacting that surety following the process of kiln drying.

"It can be readily appreciated that the manufacture of Roddis Flush Doors is not merely a matter of a few hurried weeks or months. Roddis Flush Doors being installed today were originally cut from lumber nearly two years ago, and have been in the preparatory making for that length of time. This is what you secure when you specify and purchase Roddis Flush Doors; and you obtain an all-Roddis product, from forest to final finish. Roddis is not dependent upon nor at the mercy of outside, uninterested sources of supply of varying standards. Roddis controls its quality and quantity production for highest grade,—uniform material and manufacture always,—be the order for one door or 1 000 doors,—and in the same respect is in fully organized condition at all times to give the 'on time' delivery service specified and demanded; regardless of shipping distance or size and individual specifications of an order."

Roddis doors possess excellence in many respects. The way in which they are constructed prevents their warping, shrinking, expanding, or cracking; they are fire-resisting and strictly sanitary, and they are soundproof, this last procuring their frequent use. "Unlike the old style door, they have no thin, vibrating panels to catch and transmit every sound. There is a completely solid thickness of wood from top to bottom of the door. It serves as an efficient blanket for noise."

INDEPENDENT AIR FILTER CO., 29 South Clinton St., Chicago, Ill. Air Filters.

A new type of dry air filter announced by the Independent Air Filter Company adapts one of the oldest and most efficient principles of air conditioning to a unit much more compact in size than has heretofore been practical. Architects who are making a study of air conditioning will find in this catalogue valuable information. It bears the A. I. A. file number 30-D-3.

SARGENT & COMPANY, New Haven. "Modern American Hardware by Sargent."

Architectural consistency requires that when a building has been designed in accordance with a definite architectural style all the details or accessories be in agreement. This is particularly true when the type of architecture being used is as individualistic as the "Moderne," "Modernistic" or "Contemporary," which seems to have been founded upon a complete breaking away from tradition. Several writers on architecture have called attention to the fact that such accessories as hardware used at doors and windows have much to do with giving character to an interior, so one is glad to find that a well known manufacturer of such hardware has seen that structures built in a wholly new architectural style require hardware in keeping. The result is the appearance of a booklet which deals with such fittings. "The hardware illustrated in this brochure shows the influence of some of the current thought in the architectural field. These examples of metal work produced by Sargent are characteristic of the movement away from traditional forms. The standard designs, which bear identifying trade numbers, are the work of Sargent designers, executed in the Sargent workshops by experienced metal workers whose craftsmanship is unexcelled. They can be supplied for any building. As new ideas in architectural form and expression develop, other hardware will be produced by Sargent to conform to the advancement of the times."

KOHLER COMPANY, Kohler, Wis. "Color Creates New Beauty."

Unless one has had it demonstrated, it is not always easy to visualize the appearance of a bathroom wherein proper use has been made of the materials now readily had. The manufacturers of such tiling and simple mosaic as are used for floors, walls and sometimes for ceilings now produce them in many colors. The makers of bathtubs, lavatories and other fittings do likewise, and such accessories as shower curtains, bath mats and other details are available in a bewildering assortment. With all this in the way of resource, it requires only the ingenuity of an architect, decorator or home owner to plan a combination which may easily make the bathroom the most distinctive part of a house. This folder deals with the plumbing fixtures in color offered by the Kohler Company,—buff, green, lavender, brown, and gray, as well as blue, ivory and black. Fixtures of those colors, in addition to all the variety to be had in tiling and accessories, supply opportunity for work of a striking character.

ORANGE SCREEN COMPANY, Maplewood, N. J. "Details and Data for Screen Installations."

That the luxuries of one age become the necessities of the next is amply demonstrated in considering wire screens. A generation ago having window and door screens was thought to be only for the opulent. Others endured flies and mosquitoes as best they might. Today such screens are regarded as almost as necessary as panes of glass in windows or locks on doors. Manufacturers have well performed their duty in providing screens of the most advanced types, adapted for use with windows of different kinds and shapes.

"Special conditions and requirements must always be taken into account before the one best method for screening any opening is determined. The use of outside shutters or blinds, unusual hardware for operating sash, window shades, Venetian blinds, drapes, etc., should all be considered at the time the window details are being prepared. Such precaution will save confusion, delay and extra expense in connection with the screen installation." This booklet deals with the excellent screens made and sold by the Orange Screen Company. Diagrams and drawings make plain the working of the screens, and every necessary detail of data is given. For the guidance of architects and builders there are included some suggestions likely to be helpful. "By placing a screen contract during the early progress of a building, the manufacturer's representative will follow the construction work and be of assistance in avoiding any unforeseen difficulties in connection with screens."

FROM CABIN TO COLLEGE and BACK HOME AGAIN

The huge Berea College, in Berea, Kentucky, grew out of a small church organized in 1853.

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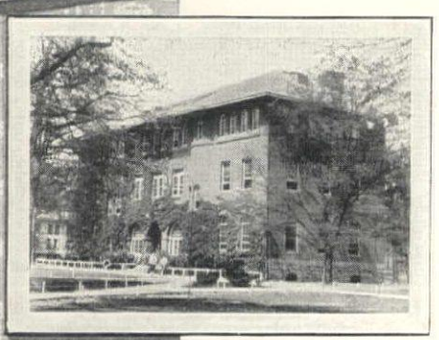

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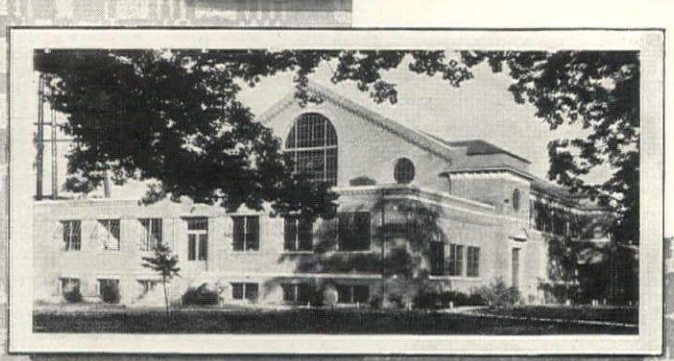

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REVIEWS AND ANNOUNCEMENTS

Showing "tomorrow's offices today" is the phrase the E. F. Hauserman Company uses in describing its 1931 partition exhibition, occupying the entire top floor of the building at 10 East 40th Street, New York.

Unlike the customary materials exhibition, the Hauserman Company offers demonstrations, motion pictures, exposed structural details, and methods of testing finishes to interest architects and builders. In addition to the attractive appearance of these movable steel partitions, with their beautiful graining and rich paneled designs, the speed and ease of erection and dismantling are features which the exhibition well demonstrates.

WALWORTH COMPANY, Boston. "Walworth Valves, Fittings, Tools. Catalog 88."

A catalog of 754 pages very completely illustrates the Walworth products. It is divided into the general divisions of valves, fittings and C. N. I. pipe, of which 23 sub-divisions are made. Aside from the standard lines, the Walworth Company manufactures a great many products for special purposes, which indicates its appreciation of the scope of the needs required for handling steam and liquids. These special products, as well as the standard products, are given the most thorough consideration in research investigations of conditions and requirements before the final designs are made and are then subjected to the most rigid and severe tests before being placed on the market. Among the special fittings are the Kewanee Union Specialties; Fire Protection Service Valves and Fittings; Sigma Steel Valves for both high temperatures and pressures; and C. N. I. (chrome-nickel-iron) cast pipe and fittings. The C. N. I. products are designed for conditions which would be highly corrosive for steel or wrought iron pipe. It can be cut and threaded with the ordinary tools made for that purpose; can be welded with the oxy-acetylene very much like plain carbon steel. A full line of cast fittings and couplings is manufactured. A line of Drive Well Points is manufactured also. The line of pipe tools is especially complete. With the increasingly heavy duty required in the modern building, both in steam and water, it is of the utmost importance that the necessary equipment be of the right quality, not only to withstand high pressures but also to reduce maintenance expenses. This is applicable also to the use of standard equipment. Maintenance cost must be considered along with the first cost.

CRANE CO., 836 South Michigan Avenue, Chicago. "New Sanitary Drinking Fountains."

The attention which is being given just now to matters affecting sanitation and public health has brought about the almost complete disappearance of cups or glasses for general use in drinking water, and the substitution of individual cups of paper or some paper derivative in some cases and in other instances of the drinking fountain, where the water is taken from a running jet without use of any cup whatever. Use of either system is of course to be recommended, the choice depending probably somewhat on the nature of the surroundings and partly on the number of people to be accommodated. This booklet deals with the excellent assortment of drinking fountains made by the well known Crane Co., to be had in wide variety, some to be fixed to walls and others to stand on pedestals. In either case there is a wide variety of nozzles or bubblers to choose from.

THE J. G. WILSON CORPORATION. Sectionfold Doors Operating Overhead.

Two folders cover, by means of photographs, details and text, the use of these doors in either public or private buildings. Of them the J. G. Wilson Corporation says: "These doors roll overhead out of the way. They can be operated manually, mechanically or electrically. The same principle of counter-balance employed in the Wilson Rolling Doors and Partitions is directly responsible for the ease with which these doors operate. The use of this principle eliminates exposed overhead springs and chains, which present a serious hazard."

McDonald & Company, engineers and architects, announce that they will occupy the tenth floor of the Commercial Exchange Building, Atlanta, Georgia, after March 15, 1931.

F. E. Berry, Jr. & Co. Inc., acoustical and soundproofing engineers and constructors, announce the removal of their executive offices to the ninth floor of 182 Tremont Street, Boston, Mass.

La Farge, Warren & Clark, architects, announce the dissolution of their firm on March 10, 1931. Samuel Adams Clark will continue the practice of architecture under his former firm's name of Warren & Clark at 136 East 57th Street, New York City. Jefferson M. Hamilton will be associated with him. C. Grant La Farge and Christopher La Farge will resume their practice at 122 East 58th Street, New York City, under the firm name of La Farge & Son.

Charles Wellford Leavitt & Son, civil and landscape engineers, announce the removal of their offices to the Chrysler Building, 42nd Street and Lexington Avenue, New York City.

Arland A. Dirlam and George E. Brennan announce the opening of an office to practice architecture under the firm name of Dirlam & Brennan, architects, in the Caldwell Block, 142 Pleasant Street, Malden, Mass. They would appreciate manufacturers' catalogues and samples.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, OF THE ARCHITECTURAL FORUM.

Published Monthly at New York, N. Y., for April 1, 1931.

State of New York, } ss.
County of New York, }

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Kenneth K. Stowell, who having been duly sworn according to law, deposes and says that he is the editor of THE ARCHITECTURAL FORUM and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—National Trade Journals, Inc., 521 Fifth Avenue, New York, N. Y.
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3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also, that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities, than as so stated by him.

KENNETH K. STOWELL
Editor

Sworn to and subscribed before me this 31st day of March, 1931.
(Seal) MADELINE DIETRICH,
(My commission expires March 30, 1933.) Notary Public

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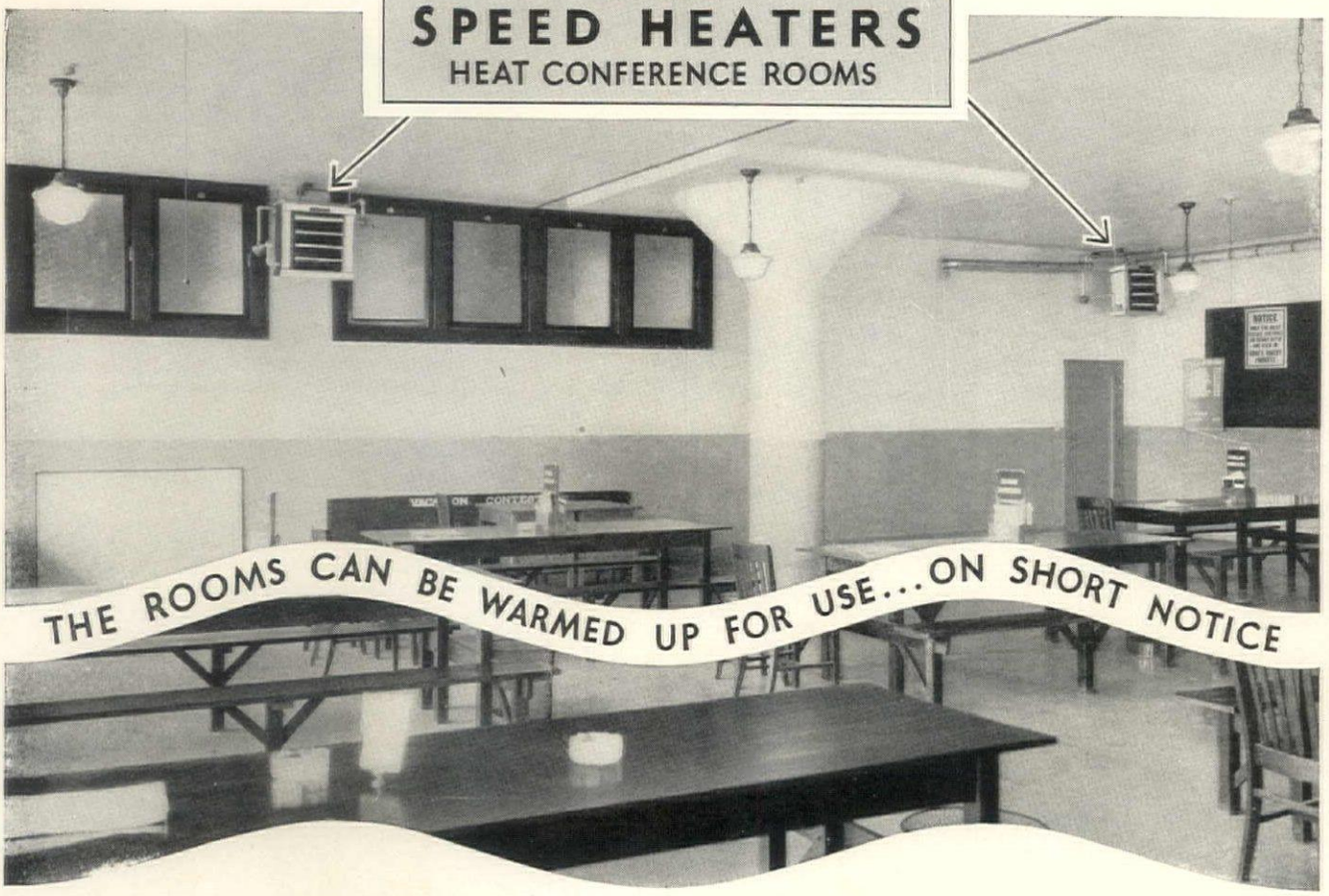
WHEN SPEED HEATERS HEAT CONFERENCE ROOMS



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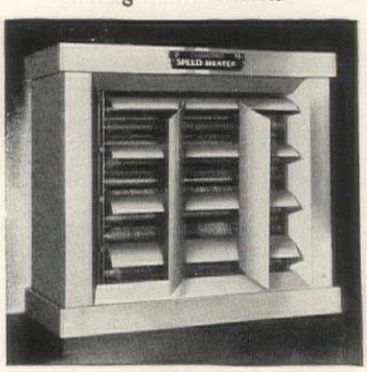

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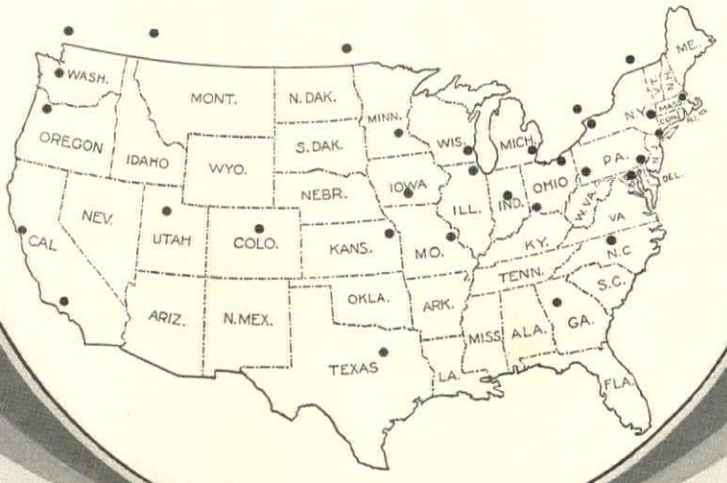

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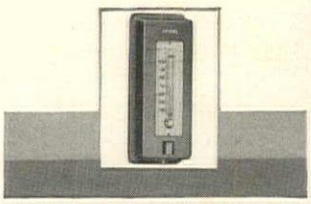

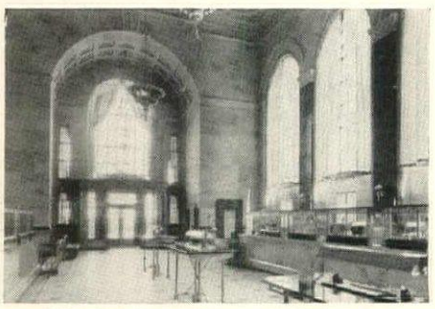

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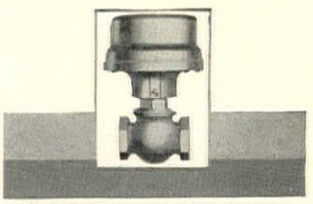
Uffinger, Foster & Bookwalter, N.Y. City, *Arch.*



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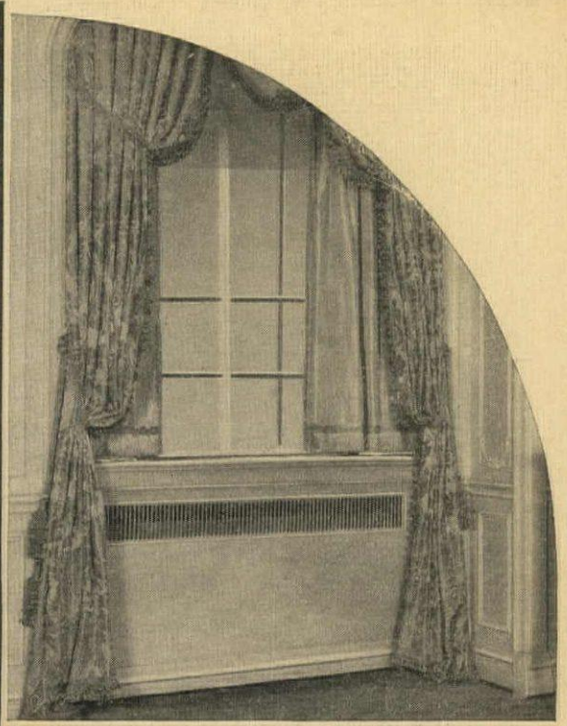
MODERN RADIATION BY McQUAY

The interior beauty of the American Home today is proverbial. Every detail of fitting and furnishing is designed and built to add to its beauty as well as to its comfort. Architects include that quality in every plan they create. Beauty looms as important as utility.

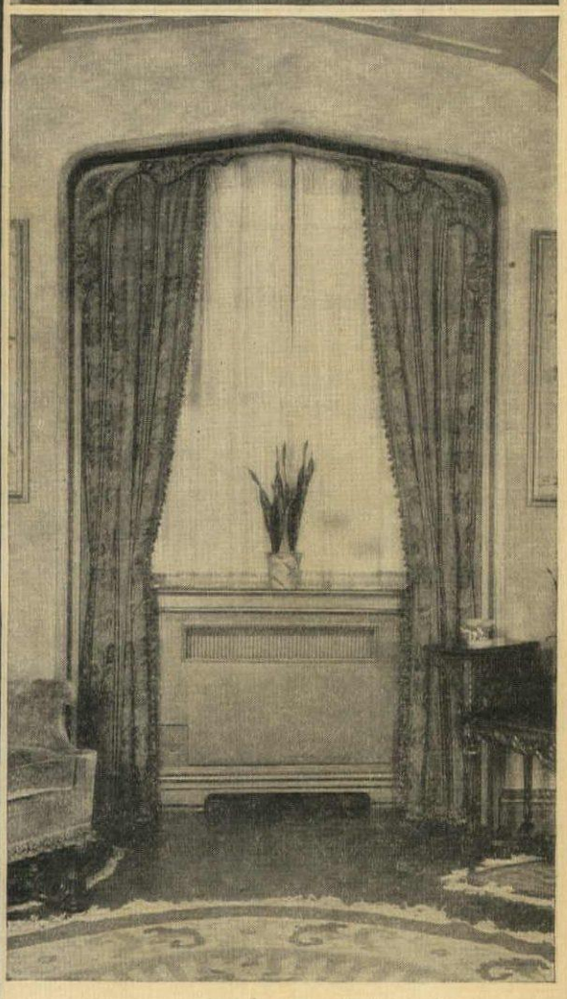
For that reason McQuay All-Copper Radiation is universally selected to diffuse clean, controlled, even heat within modern homes . . . and to add decorative beauty to interiors with Radiator Units made to harmonize with any type of construction and motif of decoration.

"Modern Radiation by McQuay" is specified today by architects everywhere for homes, hotels, hospitals, office and apartment buildings.

A suitably bound set of McQuay Catalogs illustrating and describing all types of McQuay Radiation is available for your files and will be sent to you on request.



McQuay panel type (PT) Radiation may be either wholly or partially recessed



Small concealed hinged openings may be conveniently placed, allowing easy access to supply valve. The front panel is removable

McQUAY RADIATOR CORPORATION

General Offices 1600 BROADWAY, N E., MINNEAPOLIS, MINN

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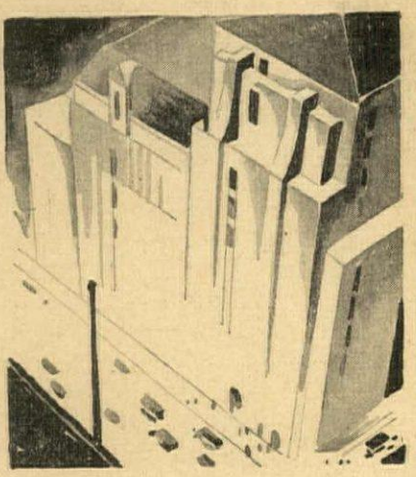

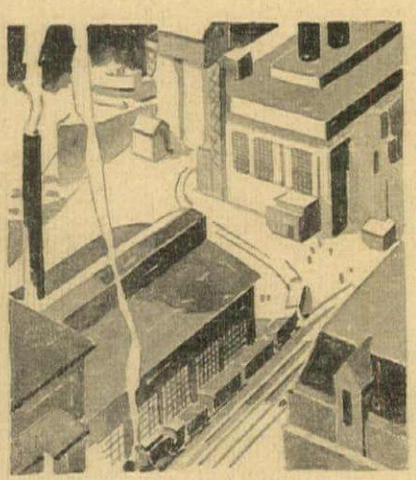

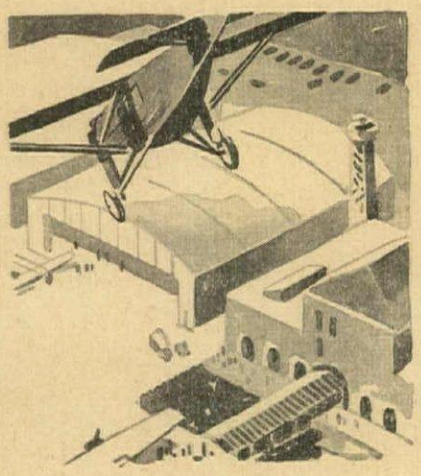

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