THE ARCHITECTURAL RECORD



OCTOBER 1930



THE ARCHITECTURAL RECORD

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C. THEODORE LARSON

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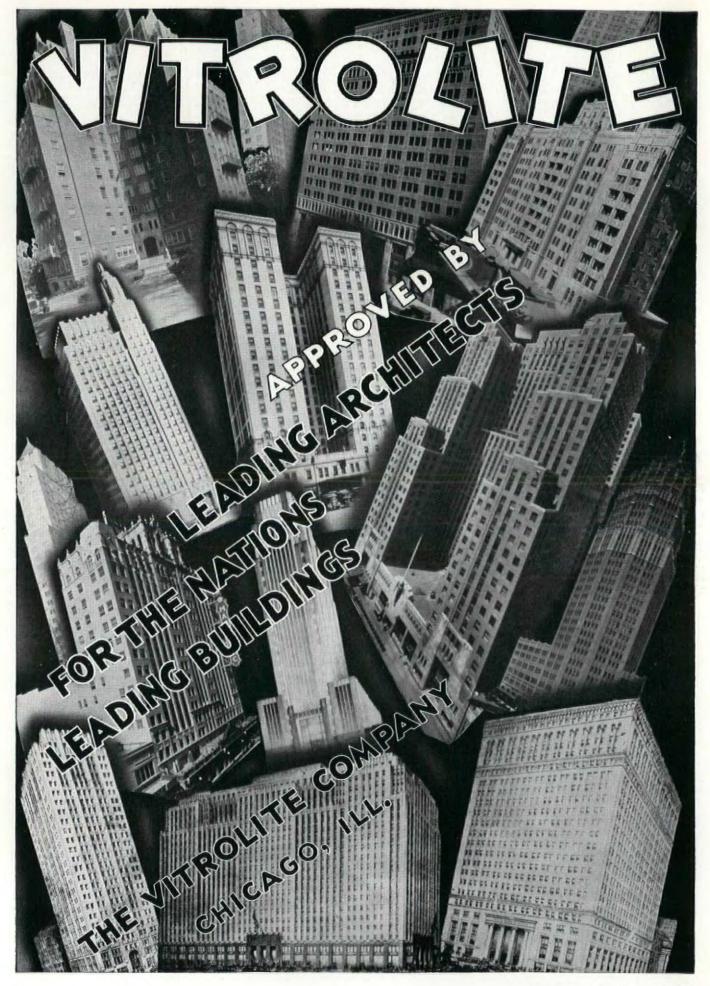
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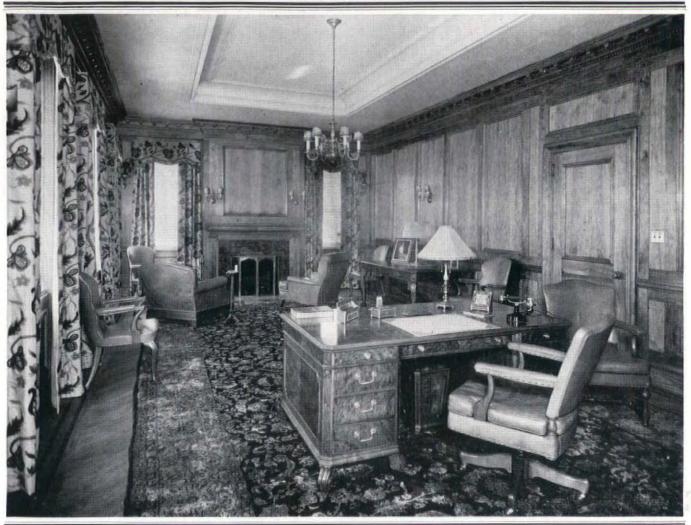
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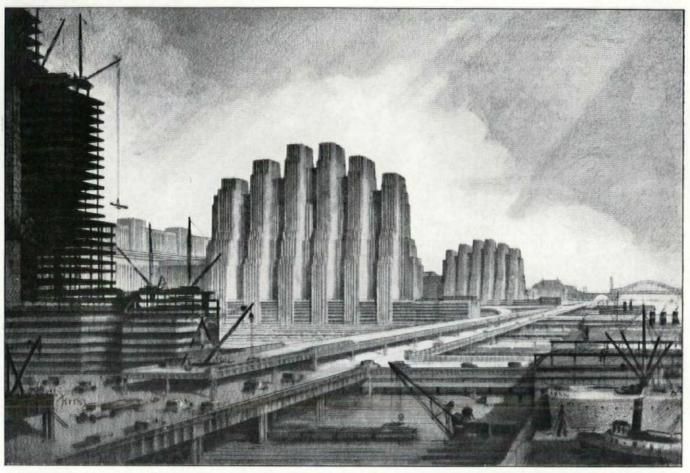
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note the number of
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days. Facts are what count
—facts that you can apply
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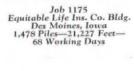
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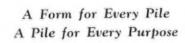






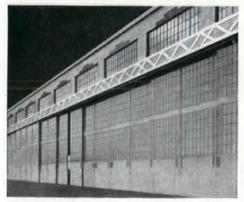
Job 1139 Jefferson Standard Life Ins. Co. Greensboro, N. C. 1,242 Piles—25,088 Feet— 46 Working Days



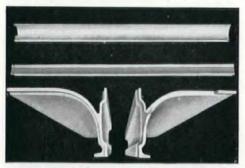








Alcoa Aluminum Spandrels, approximately 3 ft. by 5 ft. 6 in. View shows these spandrels as used on sides of hangar. Note Alcoa Aluminum Cornices, also.



Front, back and edge views of Alcoa Aluminum Cornices. Cast in lengths 6 ft. 6 in, long by 53/2 in. by 33/4 in.

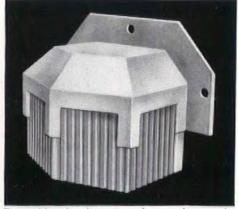
In designing the Wayne County Airport, which is one of the few airports in the United States to have an official A-1-A rating, Giffels and Vallet made generous use of Alcoa Aluminum.

Following precedent, they specified Alcoa Aluminum Spandrels. 226 of these spandrels, approximately 3 ft. by 5 ft. 6 in., have a total weight of only 18,000 lbs. By using Alcoa Aluminum Spandrels, the whole structure was given a decided architectural character. In addition, a considerable saving was made in the structural members. The spandrels, cast in No. 43 Alcoa Aluminum Alloy, are themselves ½ lighter than similar spandrels cast in any other metal commonly used.

Next, the designers made use of Alcoa Aluminum for cornices. These were also cast of No. 43 Alcoa Aluminum Alloy, in lengths 6 ft. 6 in. long by 5½ in. by 3¾ in. The entire 1,014 feet of cornice, required, weighs only 3,000 lbs. Thus a further saving of approximately 6,000 lbs. was effected.



ALCOA



Fixture No. 4 has dimensions of 14½ in. by 10 in. by 8 in. It is cast of Alcoa Aluminum with a ¼ in. wall and weighs only 10½ lbs.

Alcoa Aluminum Lighting Fixtures, as indicated on Walls and Smoke-Stack of Airport Power House

Especially designed and constructed lighting fixtures made of Alcoa Aluminum for the airport insure that the aviators' eyes are not subjected to the glare of the lights.

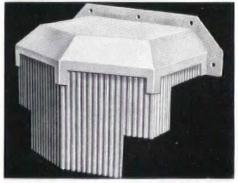
Although this is not the first time lighting fixtures have been fabricated of Alcoa Aluminum, these particular fixtures were cast to 3 special dimensions. There are 121 of these fixtures, yet their total weight is only 2,900 lbs.

Alcoa Aluminum has definitely proved its many varied and practical uses in structural and decorative effects. Its use is preeminently indicated where factors to be considered are lightness in weight and consequent ease of handling on the job; freedom from corrosion from water or gases; permanence, and a natural finish that does not require surface protection. Unaffected by atmospheric gases or sulphurous smoke fumes, it is suitable for use in or near roundhouses, chemical factories, or places where industrial processes result in a gaseous or damp condition, such as that which prevails in the textile or laundry business.

A representative from our nearest office will be glad to discuss the use of Alcoa Aluminum for any architectural purpose you may have in mind. ALUMINUM COMPANY of AMERICA; 2467 Oliver Building, PITTSBURGH, PENNSYLVANIA.



Fixture No. 3 weighs 201/4 lbs. It is 22 in. by 121/2 in. by 12 in. Cast of Alcoa Aluminum with a 1/4 in.wall.



Fixture No. 1 weighs 39% lbs. and is 28 in. by 18 in. by 20 in. It, too, is cast of Alcoa Aluminum with a 14 in. wall.

ALUMINUM

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Built before the United States was born, hundreds of buildings are still in sound condition—thanks to the durability of Tidewater Red Cypress (Coast Type).

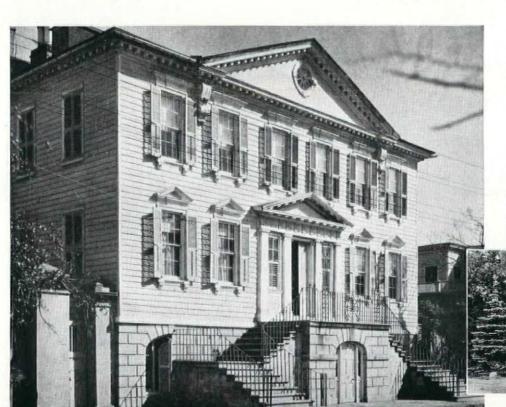
Today, this durable lumber is favored more than ever before by architects. They *know* its ability to fight time and rain and changing temperatures.

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Write to the Southern Cypress Manufacturers' Association, Jacksonville, Florida.



Tidewater Red Cypress was used throughout the Gibbs home in Charleston, S. C. Built in 1800, it is sound as a dollar today

The architect, Arthur T. Remick, New York, employed the same rugged lumber in the beautiful new home of Arthur W. Wood in Westchester County, New York

TIDEWATER RED CYPRESS

(COAST TYPE)

THE WOOD ETERNAL

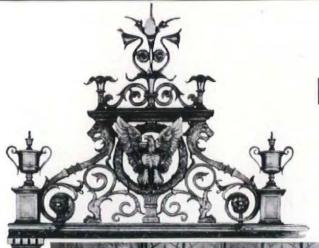
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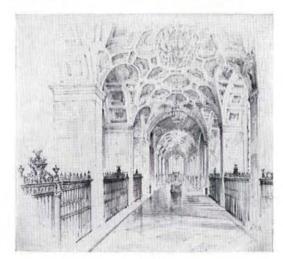


FEDERAL RESERVE BUILDING

CLEVELAND, OHIO
Interiors of Banking Lobby



The side walls and pier facings in the Main Banking Lobby of this building are of Convent Sienna Marble, the floor - Tennessee. The barrelled ceiling is richly decorated in gold and color in the Roman manner. Lobby bays between the piers are screened with Iron grilles. Each bay, a private space adjacent to the Banking Screen, is allotted to Member Banks for business transactions. + + The grilles were originally designed for Wrought Iron. For economy, however, the work was Cast and the desired Wrought effect obtained by a baked enamel finish-in imitation of rusty iron. + + + The arched window openings on the outer wall, shown in the background, are screened with glazed grilles. These were produced by similar methods of handling The entire Metal equipment of this building was fabricated by Flour City Ornamental Iron Plant,



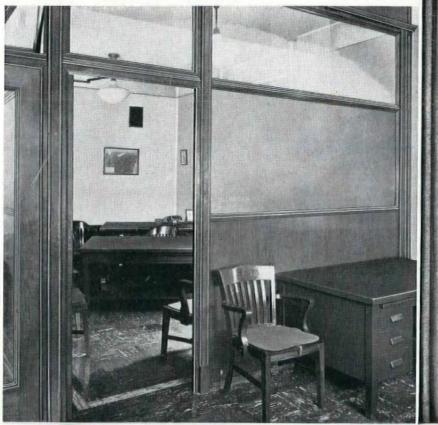
WALKER & WEEKS, Architects

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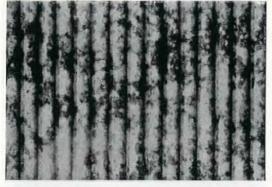
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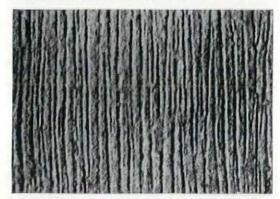
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Mobile











Texture" in Northwestern Terra Cotta nomenclature, is defined as the treatment of the clay surface, before the application of color or glaze, so as to produce any desired pattern, either regular or irregular. The accompanying illustrations indicate a few of possible textures, ranging from the lowest relief to rugged or modeled surfaces.

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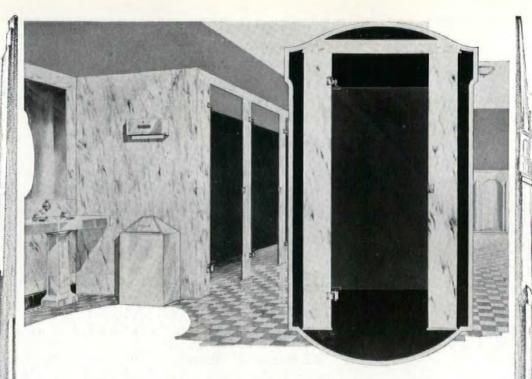
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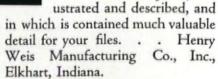
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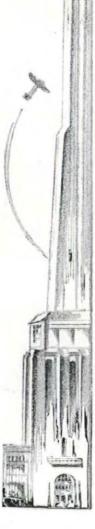
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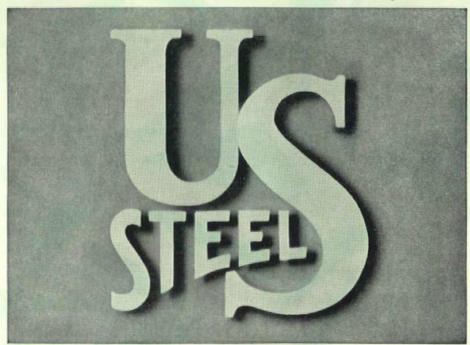
Turn now to the six-page insert in color in Sweet's, 1930 edition, following page B2388, for full information concerning Metalunits.





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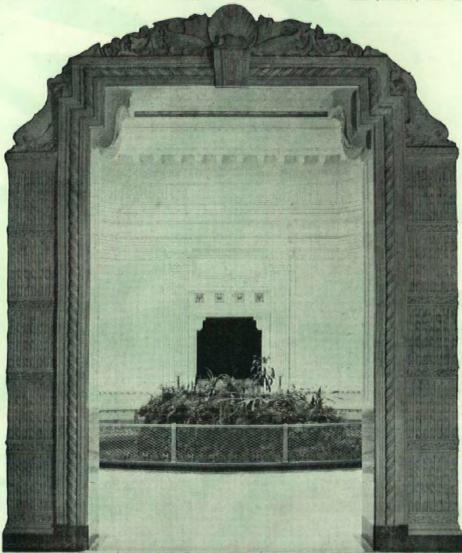
Universal Atlas Cement

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Concrete for Permanence

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES OF UNITED STATES STEEL CORPORATION -

FOR LASTING BEAUTY



Entrance to room containing tropical pool, Shedd Aquarium, Chicago. Art marble around pool, made with Atlas White portland cement, furnished by Chicago Art Marble Co. Stucco finish on pre-cast portal, also of Atlas White, furnished by California Stucco Products Co., Chicago. Graham, Anderson, Probst and White, architects; R. C. Wieboldt Co., general contractor; John A. Boland Co., plastering contractor, all of Chicago.

ATLAS WHITE PORTLAND CEMENT

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Mortar made with Atlas White sets off the white marble exterior to excellent advantage and protects it against unsightly stains. Lighttinted blue and green stucco, made with Atlas White, gives the interior corridors an unusual and pleasing effect. Stucco applied over the precast portals of each doorway strikes an unusual note. Art marble made with Atlas White decorates a tropical pool in the rotunda, the directors' room and various other rooms in the building.

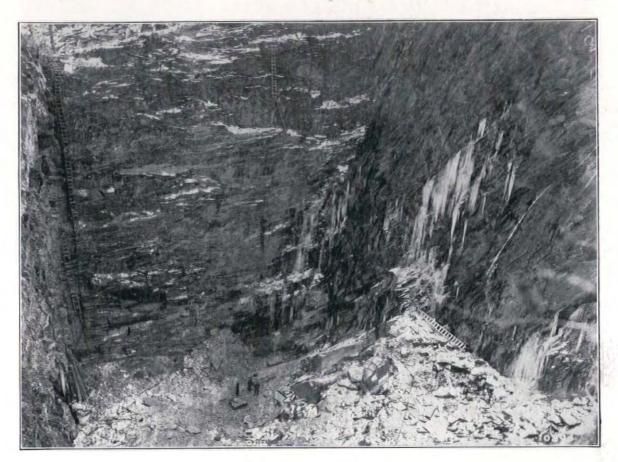
Booklets containing in detail the many uses of Atlas White portland cement will be furnished on request.

Universal Atlas Cement Co. Subsidiary of United States Steel Corporation Concrete for Permanence

CHICAGO NEW YORK NEWARK PHILADELPHIA BOSTON ALBANY PITTSBURGH CLEVELAND COLUMBUS

MINNEAPOLIS DULUTH ST LOUIS KANSAS CITY DESMOINES OMAHA OKLAHOMA CITY BIRMINGHAM WACO

One of the holes you made us dig



In a way, this is a puzzle picture: "Find the three men." But when you have found them, you have a better idea of dimensions.

In another way, it isn't a puzzle at all.

To be sure, it is only one of our several quarries: the one from which we extract Sheldon's Unfading Mottled Purple and Green. But for all that, it is no puzzle that so gigantic a hole was made by your demand for these matchless colored slates.

For, as we enumerated in detail last month, you can demand all the protective qualities a roof should possess and a Sheldon Slate Roof will meet you one hundred per cent in all of them.

In addition thereto, its beauty graces any building,

be it the acme in design and construction, and lifts practically every building into a higher class.

Furthermore (to come back from esthetics to material essentials) its life, being longer than that of the building, makes it an incomparable investment.

Good reasons, are they not? why you have made us dig such enormous holes.

Our pages in Sweet's give technical data, also illustrations in colors, to help you visualize certain Sheldon combinations.

But, better than anything else, permit us to render you the most efficient assistance possible in the selection of a Sheldon Slate Roof that shall possess "all the beauty of appropriateness."



F.C. SHELDON SLATE CO.

GENERAL OFFICES GRANVILLE N'Y

· BRANCHES IN PRINCIPAL CITIES ·



Hand-Laid Sunshine underfoot

There are 15,000 sq. ft. of Armstrong's Linotile in the halls, domestic science kitchens, and library of this new High School at Great Neck, Long Island, N. Y.

It's so easy to wipe up spilled things in this domestic science kitchen. It's floored with Armstrong's Linotile, of course. BRIGHT surroundings make cheerful pupils. That's one of the reasons a tailor-made floor of Armstrong's Linotile is so desirable. There is no limit to the colors and designs that may be used in these custombuilt floors.

Armstrong's Linotile has the advantage of being quiet, too. A pencil dropped on this sound-muffling floor won't distract a student's attention. Nor will shuffling feet, nor footsteps out in the hall, disturb classroom concentration.

In halls, cafeterias, and libraries, in fact in every room of any public building, Linotile is just as successful. These floors are lasting. They're clean and sanitary as well.

And Linotile is a labor-saving floor. It is very easily and quickly installed. And once it is laid, light waxing and polishing will preserve its lustre indefinitely.

Let us send you our booklet, "Custom-Built Floors of Cork." It illustrates the thirty Linotile colors, and tells about the various tile sizes. It will also give you information about Cork Tile, another Armstrong's tailor-made floor.
Write to the Armstrong Cork Company, Custom Floors
Division, Lancaster, Penna.

Product



In this quiet library the Linotile floor has been laid by expert workmen.

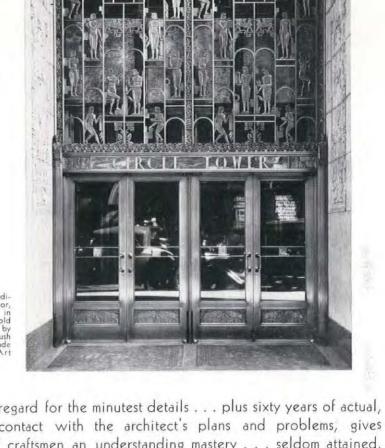
Armstrong's Custom Floors LINOTILE CORK TILE

MADE BY THE MAKERS OF ARMSTRONG'S LINOLEUM

ORNAMENTAL METAL IN THE FINEST Buildings Crafted by MICHAELS



Circle Tower, Indi-anapolis, Ind. Door, header and grille in soft Etruscon gold luster. Designed by



INFINITE regard for the minutest details . . . plus sixty years of actual, intimate contact with the architect's plans and problems, gives Michaels' craftsmen an understanding mastery . . . seldom attained.

The finest banks, public and industrial buildings, homes, etc., boast of bronze, brass or iron work . . . Crafted by Michaels.

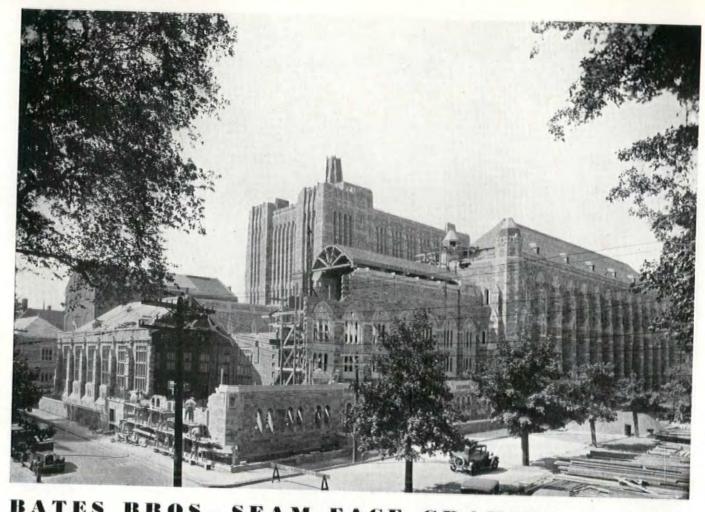
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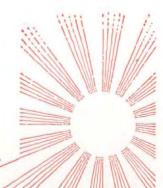


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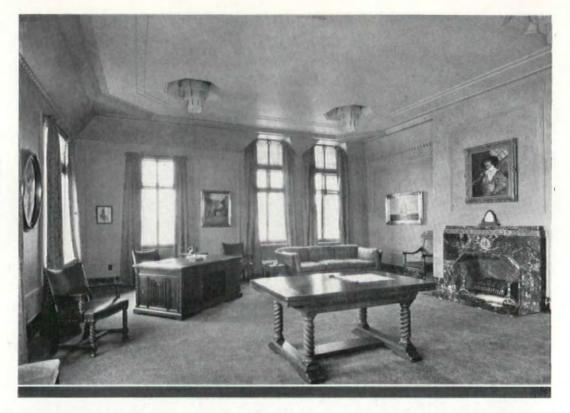
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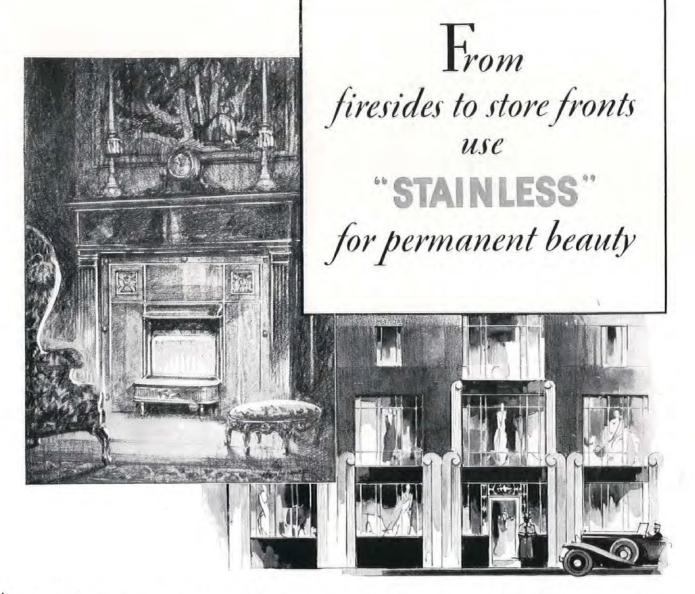
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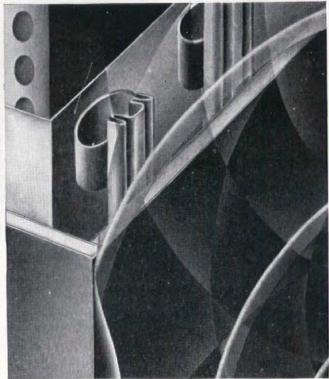
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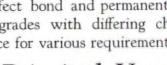
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APRIL 18 - APRIL 25, 1931

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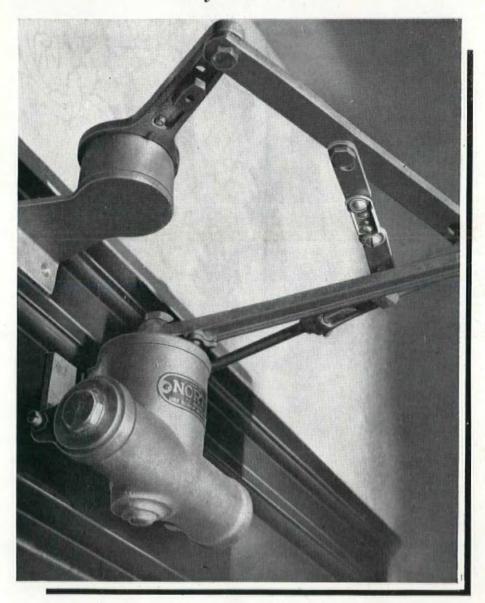
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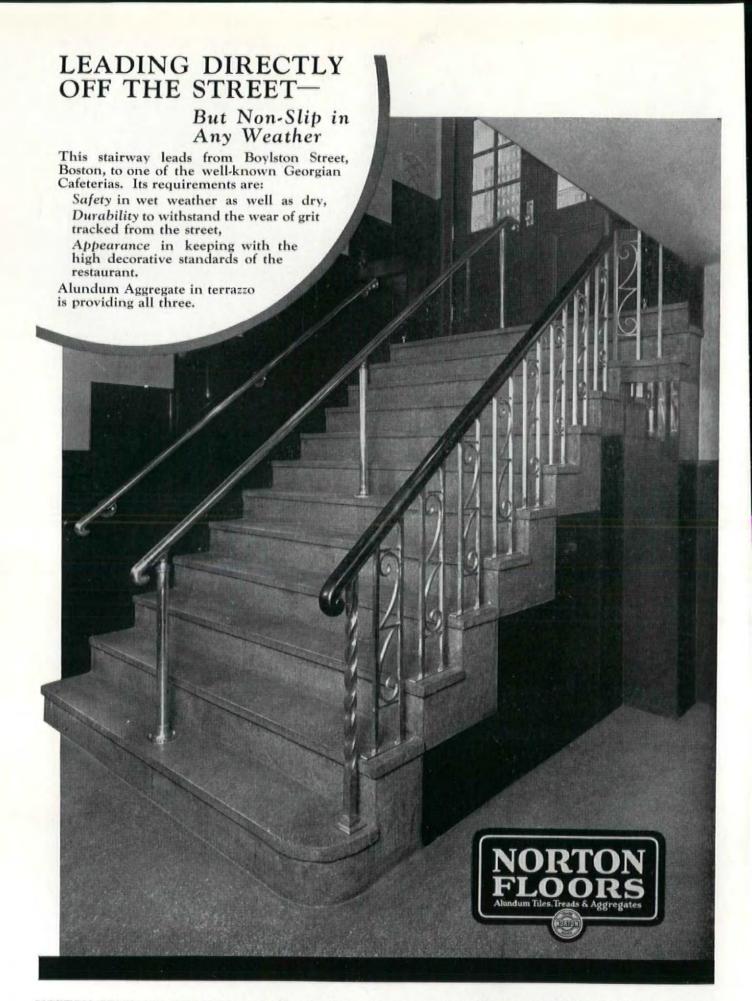
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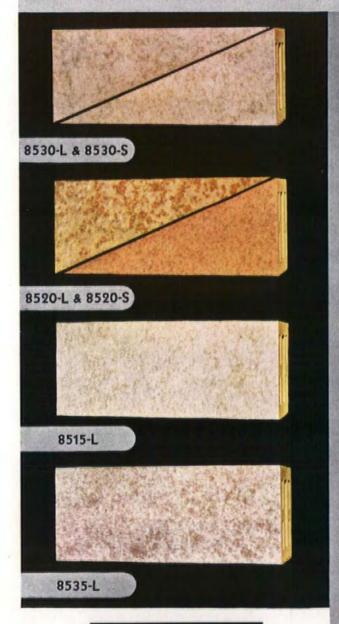
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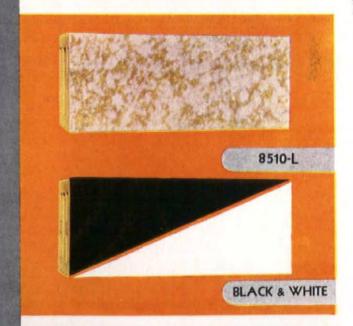
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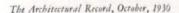
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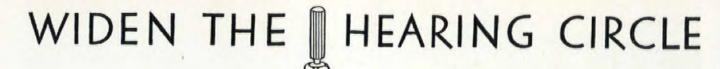
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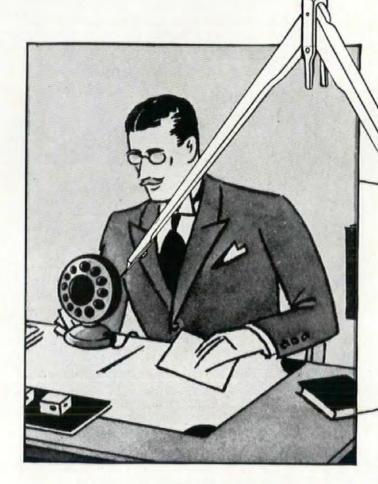


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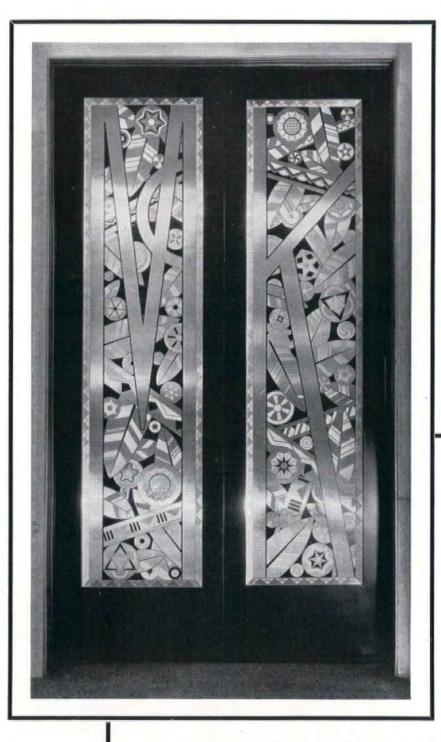
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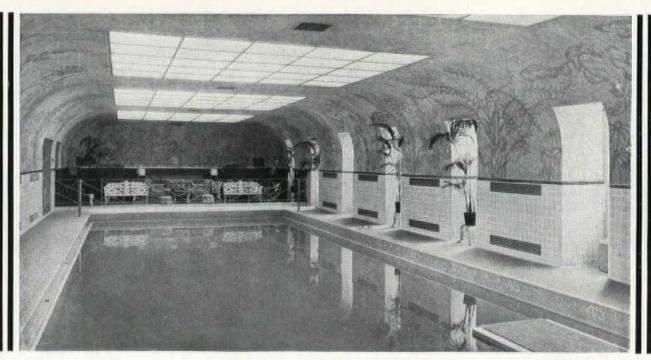


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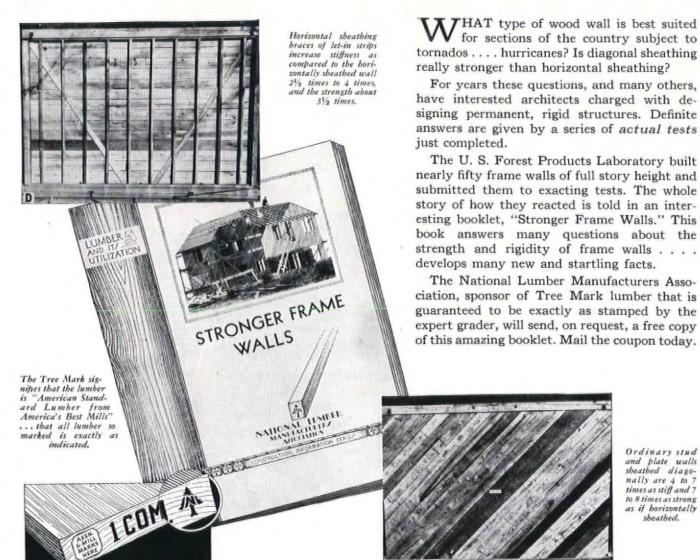
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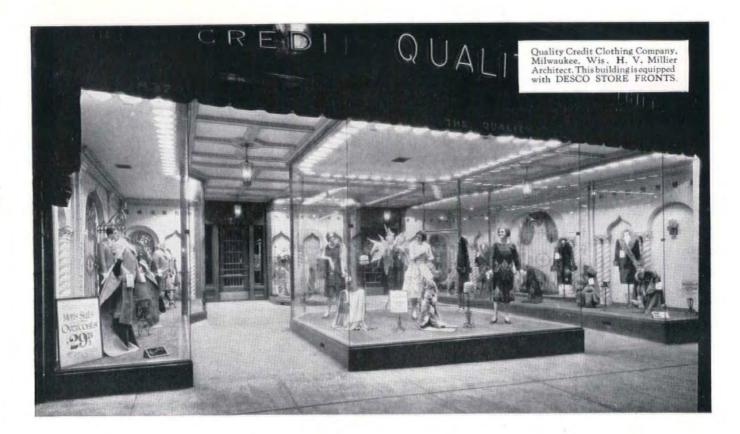
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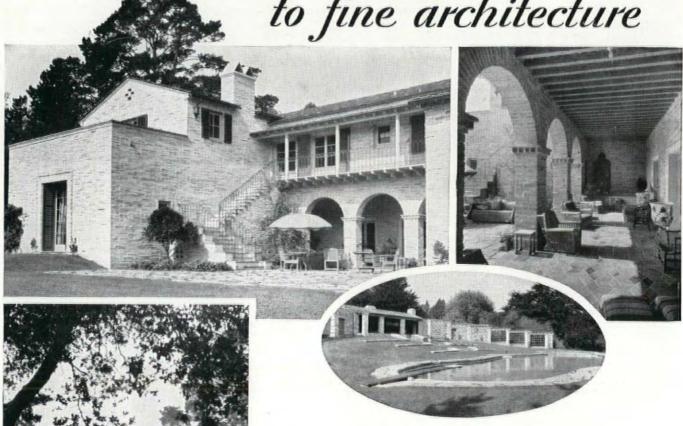
DETROIT SHOW CASE CO.

1670 West Fort Street Detroit, Michigan

New York City Office and Warehouse—344-346 East 32nd Street Pacific Coast Office—450 Skinner Building, Seattle, Washington



Concrete pays tribute to fine architecture



Concrete, in many forms, has been skillfully employed by the architect in designing this home. The exterior walls are of concrete masonry units, in slightly irregular sizes and varied colors. Building frame and floors throughout are of reinforced concrete—one unit, of utmost strength and rigidity. The roof is attractively tiled. So constructed, a home is firesafe and long enduring.

The views on this page are of a home that is distinguished in both architecture and construction—the home of Robert B. Henderson, in Hillsborough, California. Gordon B. Kaufmann, Los Angeles, Architect; Dowsett-Ruhl Company, San Francisco, Contractors

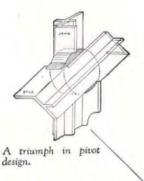




PORTLAND CEMENT Association

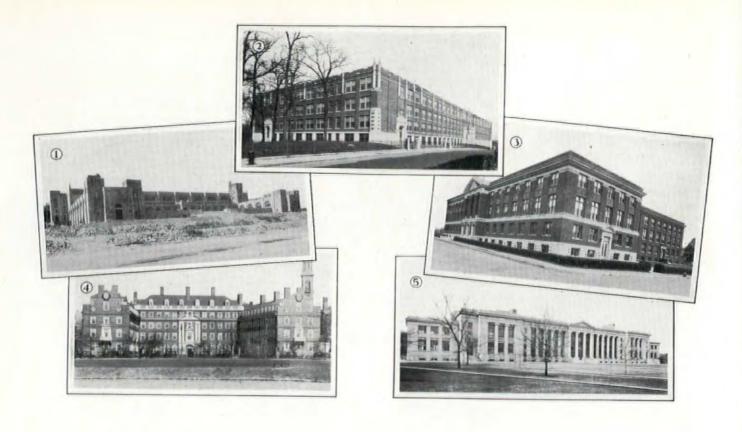
Concrete for permanence and firesafety

33 W. GRAND AVENUE C H I C A G O



Mark well these outstanding and exclusive facts regarding the one and only sash fabricated of genuine wrought iron. Sash, for the first time, replete with special advantages of design overcoming all faults common to metal sash as previously known. Achieved through the employment of the remarkable structural possibilities presented by the Mesker cruciform rolled bar in a metal having as an historical characteristic exceptional resistance to the corrosive factors commonly present where extra heavy duty sash is required. An especially vital point—the pivot—is here done in white brass and malleable iron in cup style. Freedom from weaving—smooth, positive hinge action during the life of the building!





Around Boston-

Beans ~ Brains ~ Bryant

- Brighton High School, Brighton, Mass. Architects: O'Connell & Shaw, Boston. Electrical Contractors: M. B. Foster Electric Co., Boston.
- Memorial High School, Roxbury, Mass. Architect: Harry N. Atwood, Boston. Electrical Contractors: M. B. Foster Electric Co., Boston.
- 3. Marine Biological Laboratory, Woods Hole, Mass. Architects: Coolidge, Shepley, Bulfinch & Abbott, Boston. Electrical Engineers & Contractors: Hixon Electric Co., South Boston.
- 4. McKinlock Hall. Harvard University.
 Architects: Coolidge, Shepley, Bulfinch
 & Abbort, Boston.
 Electrical Engineers & Contractors:
 Hixon Electric Co., South Boston.
- Langdell Hall, Harvard Law School. Architects: Coolidge, Shepley, Bulfinch & Abbott, Boston. Electrical Engineers & Contractors: Hixon Electric Co., South Boston.

THEY all go together. Note the type of educational institutions illustrated. These, recently constructed, are all "Bryant Equipped", for in such buildings, as in commercial buildings, homes, hotels, hospitals, manufacturing plants, proper lighting and the proper control of lighting are now considered of paramount importance. In Boston, as in most cities, you'll find that the architects and engineers responsible for the more notable buildings have specified and insisted upon the use of Bryant switches, receptacles and other wiring devices.

> You should have our Catalog No. 30 on file. If you have not received a copy, write us for it.

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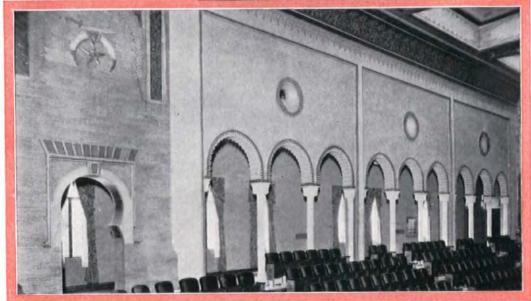
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Architect-W. Hankin, Trenton, N. J.

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The KELLEY ISLAND LIME & TRANSPORT COMPANY

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And—Tiger Mason's, Tiger Agricultural, Tiger Chemical,
Tiger All-Purpose Hydrate in 10-lb. packages, and
High Calcium and Magnesium Lump Limes. Also Quickslake
(ground quicklime) in paper-lined jute sacks.



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To the right is shown the patented Lewis Humitrol. Looks like a thermostat, acts like one. You merely set this Humitrol for the relative humidity you wish to maintain. The entire operation of the Lewis Air Conditioner is governed by this control. Humidity is regulated as completely and automatically as is temperature by the use of a thermostat. Full Humitrol details upon request.



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THE necessity of supplying additional moisture to heated air during the winter months is no longer debated. Simply adding moisture, however, does not solve the problem. Diffusion of this moisture is necessary. The recirculation of air must be considered. The air washing factor must not be overlooked. If an ideal, effective temperature for the promotion of health and comfort is to be maintained, the production of humidity must be placed under as positive control and within as close a range as that of heat.

Lewis Air Conditioners produce humidity in a vaporous, gaseous form—thus diffusion is rapid and complete. No free particles of moisture are discharged into the air. Recirculation is assisted. All air is washed in passing through the humidifying section of the various units. Most important is the patented Lewis Humitrol which places the production and maintenance of any desired relative humidity under positive control. The Lewis Humitrol used with Lewis Air Conditioners regulates humidity accurately and positively.

Lewis Air Conditioners are used with hot water or steam heating systems. A special, low priced, non-motorized unit (illustrated above) has been perfected for steam heating systems. Other models are equipped with silent motor and fan. Cabinets housing Lewis Air Conditioners are of selected woods or of fine furniture steel finished in grain and color to harmonize with interior finish. Units may be concealed in the wall to conform with modern concealed radiation or may be located in the basement.

A booklet "Controlled Humidity and Human Comfort" pointing out the advantages of air conditioning, together with full details describing the several Lewis Air Conditioners will be sent gladly upon request. The Lewis Corporation, 813 Second Ave. So., Minneapolis, Minn.

LEWIS AUTOMATICALLY AIR CONDITIONERS

BRONZE—Standards, Newels, Brackets—IRON



NOT only in the interests of safety but from an architectural viewpoint, building entrances deserve ornamental lighting.

Entrance standards, brackets or newels, add much to the appearance, but little to the cost of a building.

Union Metal has developed a complete line of exterior lighting fixtures, including designs for almost every type of service. These fixtures are available in either cast iron or bronze.

Where special fixtures are required, Union Metal craftsmen work from the architect's rendering and promise a faithful reproduction of the original conception.

Write for complete information on either stock or special designs.

THE UNION METAL MANUFACTURING CO.
GENERAL OFFICES AND FACTORY CANTON, OHIO
SALES OFFICES: New York, Chicago, Cleveland, Boston

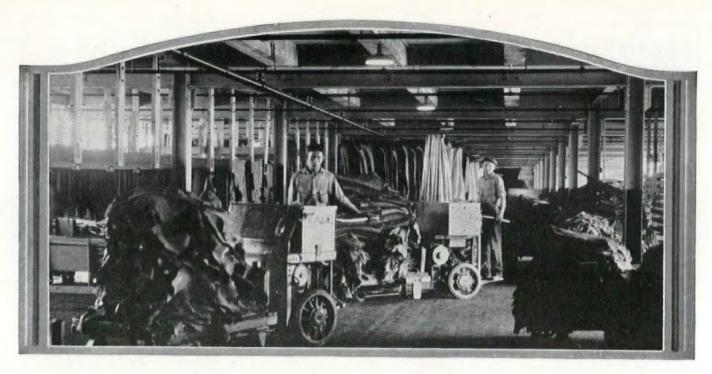
Los Angeles, San Francisco, Seattle, Dallas, Atlanta

UNION METAL

EXTERIOR LIGHTING FIXTURES



Design No. 739



A Trucking Floor of "Table-Top" Smoothness

The photograph above shows a Bloxonend Floor in the main finishing loft of the Elkland Leather Company, Elkland, Pa. Area---15,000 sq. ft. laid over a sub-floor of 2-in. splined fir plank. This BLOXONEND order resulted from a test installation laid two years before.

The irregular shape and size of hides transported on lift trucks makes secure stacking difficult. To permit capacity loading without danger of spillage and delay (due to vibration) a floor of "table-top smoothness" was required. *Durability* was also a requisite to withstand continual trucking.

BLOXONEND FLOORING is as accurately milled and scientifically kiln-dried as the wood used in the finest pianos. Sanding is not necessary to bring it to a smooth surface. Shrinkage or expansion negligible. No tar or pitch binder used.

Dovetailing small blocks of Southern Pine endwise onto 8-ft. baseboards --- and laying with splines and nails (exclusive with BLOX-ONEND) insures lasting smoothness. That is one of the reasons hundreds of leading industrials have found it profitable to pay a higher first cost for BLOXONEND. Write for Architectural Specifications.

CARTER BLOXONEND FLOORING COMPANY

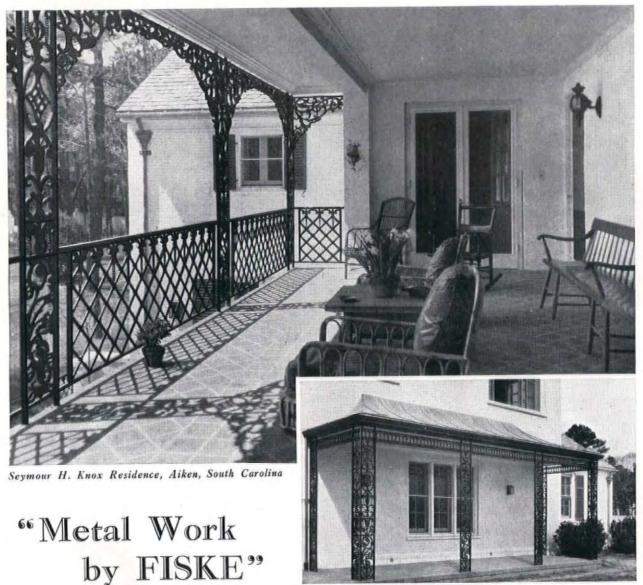
KANSAS CITY, MISSOURI

Representatives in Leading Cities

BLOX-ON-END

Bloxonend is made of Southern Pine with the tough end grain up. It comes in 8 ft. lengths with the blocks dovetailed endwise onto baseboards Lay's Smooth Stay's Smooth

> Bloxonend is widely used in shops and gymnasiums of finer type schools



Peabody, Wilson & Brown, Architects

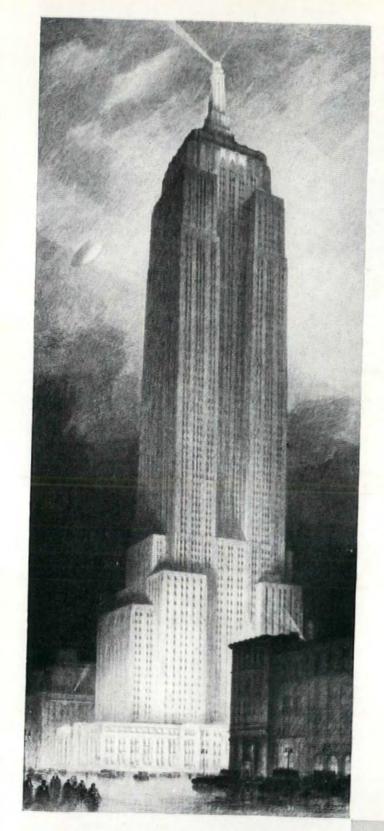
THE Seymour H. Knox residence at Aiken, S. C., is one of many luxurious homes throughout the United States where the ornamental metal fittings have been executed by FISKE. The preference for FISKE is constantly growing among architects and especially among architects whose specifications always call for the *finest*. For they realize that to specify "metal work by FISKE" is to specify the *finest*

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SHREVE, LAMB & HARMON Architects H. G. BALCOM Structural Engineer

EMPIRE STATE BUILDING New York City

THE TALLEST BUILDING IN THE WORLD

This structure is on plot of 200 feet by 425 feet. Height from sidewalk to main roof 1050 feet,—85 stories,—Plus observation tower of 200 feet, making total height of 1250 feet.

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of all classes particularly

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THE CAST STONE PORTIONS OF THE CHURCH OF HOLY CHILD OFFER A NOTABLE EXAMPLE OF THE ADAPTABILITY OF THIS MATERIAL TO THE EXECUTION OF EXACTING IN COLOR AND DETAILS. TEXTURE THE CAST STONE TRIM HARMONIZES MOST PLEASINGLY WITH THE MT. AIRY GRANITE WHICH COM-POSES THE FIELD. THE INSPIRING BEAUTY OF THIS STRUCTURE IS A TRIBUTE TO THE SKILL OF ITS DESIGNERS AND BUILDERS AS WELL AS TO THE MATERIALS USED.



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Laboratory tests conclusively prove that LUSTRAGLASS transmits more daylight. It also transmits a substantial amount of the shorter ultra-violet rays of sunlight at a wave length of 313 mu.* yet it costs no more than ordinary window glass.

For schools, factories, homes, hospitals and office buildings, everywhere that human beings live, work or play indoors, LUSTRAGLASS is needed ... Every building is more beautiful when glazed with LUSTRA-

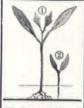
IT'S "WHITE"

GLASS, for LUSTRAGLASS is truly a superior product in every respect...flatter, clearer, more lustrous. Its appearance, alone, is ample reason for its selection by architects and builders, but a glance at the chart below will show why parents of growing children look for it in buildings which they buy or rent...

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FICATION SHEET
... SEE the complete
table of ultra-violet
ray transmission,
then keep this literature in your file to
show your clients.

*Send for LUSTRAGLASS BOOKLET A-430 and see complete table of transmission . . .



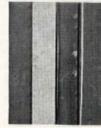
29 days growth of Tomato Plant under (1) LUSTRAGLASS (2) ordinary window glass,

An unretouched, "end on" photo of four leading makes of glass. The white one is LUSTRAGLASS...

AMERICAN WINDOW GLASS CO.

Also Makers of Armor-Lite Scatter-Proof and Bullet-Proof Glass, Tintaglass, Picture Glass, Photographic Dry Plate Glass, ¾6" and ¾2" Crystal Sheet, Ground and Chipped Glass, Improved Quartz-Lite and Bulb Edge Glass.

Farmers Bank Building



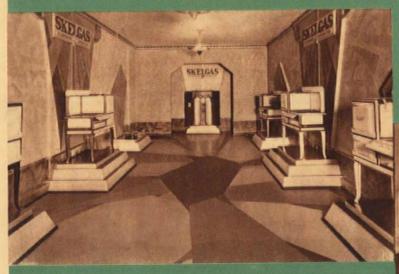
The label shown at the right appears on every light of genuine LUSTRAGLASS...Look for it. LUSTRAGLASS is packed with paper between the lights to prevent scratching or marring of the surface.

Pittsburgh, Penna.



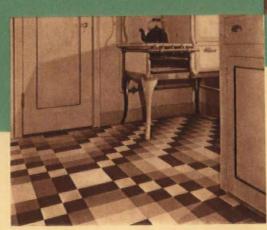
ORIGINALITY -in a medium

The adaptability of Sealex materials to interior decoration is well illustrated by this office reception room of the Walker Gordon Milk Co., New York City. That the unique Sealex floor was designed-to-order is unmistakable.



Modernistic floor of Sealex Linoleum above is carried out in Black, Dark Gray, Light Gray, Terra Cotta, and Green. A standard design for the chain of showrooms of the Skel-Gas Co.

Unusual kitchen floor design in Sealex Treadlite Tiles of several colors:—Mahogany Brown, Craft Brown, Fawn Gray and Colonial Buff.



-in a medium that encourages ORIGINALITY

We think there is something at once challenging and inspiring about these pictures. You can't look at them for long without wanting to reach for a pencil and sketching paper. You feel an itch to try your hand at designing a floor or two of your own.

All right, go ahead. The only thing to remember is that there are no rules. No blue-laws. No inhibitions.

Because you are working in the world's most "workable" floor material. A sharp linoleum knife in the hands of a skilled mechanic can make Sealex Linoleum or Sealex Treadlite Tile as-

(Continued on following page)



An illustration of the effective use of a cut-to-order inset. Judicial placement of insets makes a pleasant departure from monotony.

BONDED

Materials for Bonded Floors are manufactured by Congoleum-Nairn Inc. (Continued from preceding page)

sume almost any two-dimensional form your mind can conceive.

So reach for that pencil and paper. The sky's the limit. Plan a modernistic floor for a smart shop. An office floor with the firm's trade-mark as part of the design. A formal "period floor" for a public building. A living room floor with the owner's hobby symbolized in the floor design.

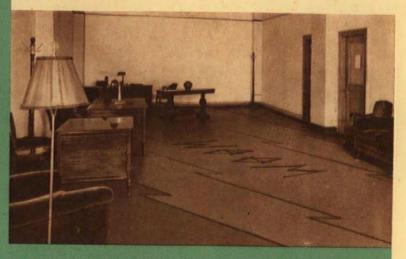
And when the time comes to carry out your conceptions, call in an Authorized Contractor of Bonded Floors. Those firms, as you can see by these pictures, have had specialized experience in this type of work. And their standards of workmanship are so high that we are able to back their floors with Guaranty Bonds against repair expense!

CONGOLEUM-NAIRN INC. General Office: KEARNY, N. J.

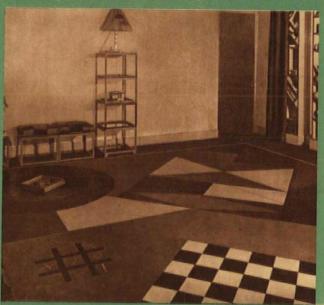
BONDED



A modernistic dressing room floor in a custom-made design, cut-to-order from several colors of Sealex Treadlite Tile.

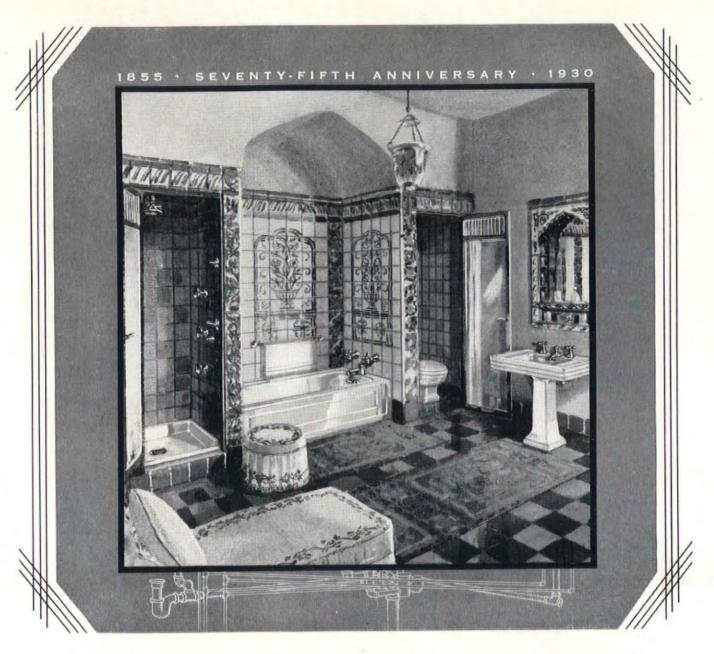


Phot design reflecting the character of a business. Reception room of Radio Station WAAM, Newark, N. J. Letters WAAM were cut from Sealex Linoleum and inset into the floor



An unusual type of game-board and floor combined, illustrating the versatility of Scalex flooring materials from a design standpoint.





Defining the true meaning of the word "chic"

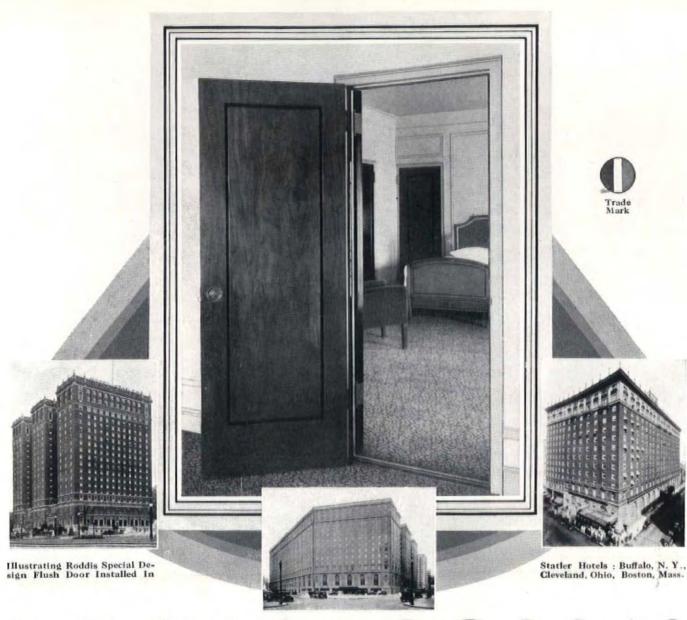
Coined in Paris to express originality plus taste, the word "chic" has come to mean many things to many people. In London, swagger; in America, pertness; in Japan, genuineness. The original and lasting meanings are the ones contained in the undoubted chic of Crane bathrooms. Always, originality and taste are found in Crane fixture designs and decorative

suggestions; genuineness in the service given. At Crane Exhibit Rooms you will find ideas for rooms as elaborate as the one above and others for the simplest cottage. Visit them. When possible, bring your client, showing him the actual fixtures. Complete installation can be on monthly payments under the Crane Budget Plan through a Crane Qualified Contractor-Dealer.

Valves I CRANE Fittings

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The most modern door style and architectural expression are followed closely by Roddis; but the pioneer fundamentals and ideals of correct quality are not forgotten, nor is the sincerity of craftsmanship abandoned. Underneath the outward appearance of Roddis Flush Doors is truth in materials and manufacture; a practice and a product that endures, and a surety of full per cent value for the Roddis price asked. Roddis completely solid, 5-ply construction insures permanently enduring

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The Most Economical Door For Residences

The cost of Roddis Doors for residences is sufficiently low to be most practical for residences. And the greater value given — in construction, beauty and permanently enduring quality add a great econ-



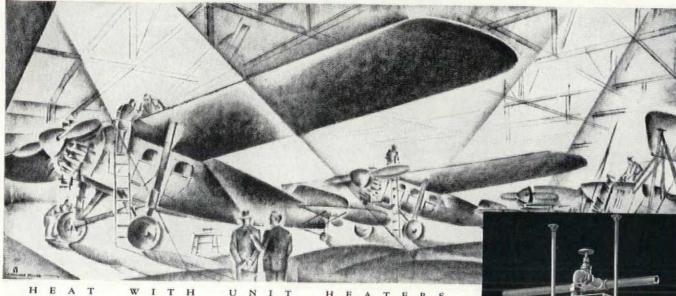
Ph. Lindsley Small. Cleveland, Ohio . . . Architect

omy when Roddis Doors are used. Standard designs are available, or made special to individual requirements. Write now for further details of Roddis doors.

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Jontrolled

- working conditions are right



It is easy to maintain an even temperature—not too hot, not too cold throughout a building . . . to keep workers comfortable and contented, after Venturafin Unit Heaters are installed and heat becomes controlled.

Equipped with an individual three-way heat control switch, each Venturafin Unit forces heated air at LOW, MEDIUM or HIGH speed-at exactly the required velocity to correct irregularities of temperature in a building. Individually adjustable streamline air-jet deflectors direct heated air in one or several directions simultaneously. Venturafin Unit Heaters force heated air where you want it, when you want it and as much as you want.

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Venturafin Units are ideal for heating factories, shops, stores, garages, and many other types of buildings. They are easy to install and can be used on high, medium or low pressure steam applications. We shall be pleased to furnish you complete data direct from the factory, or upon application at any of our nation-wide sales and service offices.

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Venturafin Units can be mounted on wall, column or ceiling with ordinary 3/4-inch hanger pipes. Heat control with Venturafin Units becomes automatic by the application of a Mercoid Thermostat.





740 PARK AVE

NEW YORK



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HIS apartment building is being erected for Mr. James T. Lee of New York. It embodies to the last painstaking detail its owner's farreaching ideas in modern luxury and beauty. That Dahlstrom Elevator Entrances were chosen for this superlatively fine building is nothing less than a high tribute. Other current Dahlstrom installations include the 60-story City Bank and Farmer's Trust Co., the 58-story 500 Fifth Avenue, the 40-story George A. Fuller Building, the 36-story Daily News Building, and the world's largest office structure, the Empire State Building on the site of the historic Waldorf-Astoria Hotel.

Elevator Entrances by DAHLSTROM

DAHLSTROM METALLIC DOOR COMPANY, (Established 1904) JAMESTOWN, N. Y. NEW YORK CHICAGO . LOS ANGELES . DETROIT . DALLAS



Good general illumination and ample show case illumination prove excellent aids to merchandising.

STYLE TRENDS IN STORE LIGHTING

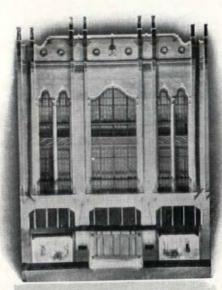
demand adaptability in wiring

By H. A. LORENTZ

of Lorentz and Lorentz, Architects Canton, Ohio

Early studies for the Lefkovits store in Canton, Ohio, indicated the need for an electrical layout capable of taking care of changing requirements for light. For the modern store, responsive as it must be to style developments, watches for improvements in lighting and in the use of electricity as closely as it watches markets and style trends in merchandise.

It was natural to turn to the wiring and lighting bureau of the electric service company serving the territory for information that would help provide continuing adequacy and protect the building



Floodlighting and intensive display window lighting provide an attractive exterior.

against early electrical obsolescence. Here was found a broad background of experience and a valuable store of information that made it possible to project the course of future electrical requirements.

The lighting installation decided upon with the help of this lighting bureau provides seventy-five window reflectors with 200-watt lamps on one-foot centers and flood-lighting from five 1000-watt projectors. In the interior of the store general lighting of 18 foot-candles is provided and in addition there is ample show case lighting.

Provision is made in the wiring for the installation of extra circuits whenever the style trend in lighting makes them desirable.

In this day of rapid electrical developments provision for meeting future electrical requirements is an important consideration in the design of any building.

For information about trends in lighting standards, and about adequate wiring standards, call on the lighting bureau of your local electric service company, or write direct.

NATIONAL ELECTRIC LIGHT ASSOCIATION, 420 LEXINGTON AVENUE, NEW YORK, N. Y.

OLD YOUR HAND ON THE SMOKE STACK

.... High stack temperature means wasted heat

If a smoke stack is running a temperature, the boiler is not efficient. Heat is being lost up the chimney. In coal-fired boilers... or with oil burners installed in ordinary boilers built for coal firing...stack temperatures are often high. That means wasted heat and high heating costs.

The ordinary boiler...with its short wide flues...is not built to absorb the intense heat of burning oil. It has remained for Gar Wood and his engineers to stop this waste.

They did it...successfully...by building a boiler like an automobile radiator. Long narrow flue passages vastly increased the heating surfaces. Water tubes were baffled to cause a scrubbing action of the gases against their walls. The result is an almost complete transfer of heat to the boiler water. Stack temperatures are just high enough to prevent condensation.

The Gar-Wood burner is engineered to fit the boiler's combustion chamber. Almost perfect combustion is effected. From the moment the Gar-Wood burner starts, its flame burns in suspension, without the use of refractory linings.

In the ordinary oil burner, the fire pot of the boiler must have a refractory lining. This is a clay tile which will heat quickly and vaporize the oil particles not atomized at the burner nozzle, and thus prepare them for combustion. Until this refractory lining is hot...which takes from three to ten minutes...the burner cannot operate at maximum efficiency.

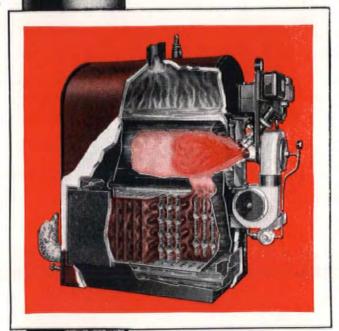
The Gar-Wood... with boiler and burner engineered into one complete balanced heating unit provides automatic heat from either oil or gas at a cost that is less than coal. Get the facts and figures. Mail the coupon now.

Responsible organizations now distributing through the heating trade should investigate the Gar-Wood franchise. Write the factory for details.

GAR WOOD ENGINEERING CO. 4196 Bellevue Ave. Detroit, Mich.







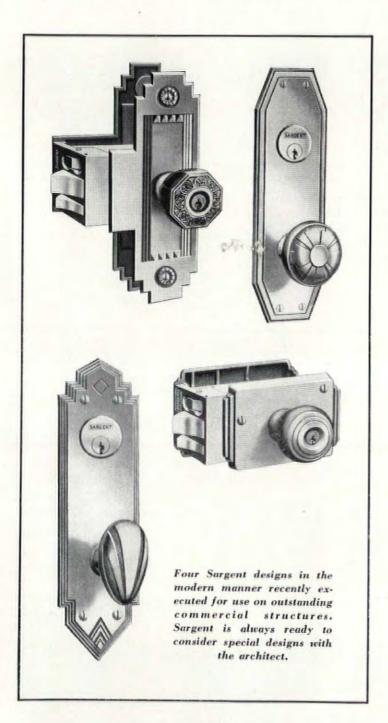
The Gar-Wood boiler is actuated by the "counter flow" principle. Fuel burns in the cylindrical combustion chamber (upper section). Gases travel downward between water tubes (middle section), then to the collecting flue (lowest section). Water and steam travel upward.

GAR WOOD ENGINEERING CO. 4196 Bellevue Ave., Detroit, Mich.

Gentlemen: Send me...without cost or obligation...a copy of "A New Principle of Generating Heat at Low Cost."

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A NEW idea of proportions, planes in symmetry, balanced angles, lines that extend unbroken—such qualities have come to characterize most of the commercial architecture of today. In step with every trend, Sargent has taken each new design element as it appears, adapted it to the strictest mechanical requirements, and produced builders' hardware equipment entirely modern—modern in beauty and modern in the perfection of its metal craftsmanship.

Sargent will execute designs specially made by the architect for an individual building, or Sargent artists and modelers will suggest special pieces designed from the architect's plans and drawings or direct from a building's decorative motif. Sargent's modern hardware is made in virtually every metal and in every kind of finish. We shall be pleased to consult with you regarding hardware for any type of building or any style of architecture. Send for our new booklet, "Modern American Designs in Sargent Hardware." Sargent & Company, New Haven, Connecticut.

In New York City—Builders' Hardware Division and Showroom at 295 Madison Avenue, Warehouse at 94 Centre Street.

In Chicago—150 North Wacker Drive (at Randolph).

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More Windows-More Sunlight

The increased number and size of windows being specified for Residences, Hospitals, Hotels, Apartments Office and other types of buildings, improves the beauty, comfort and value of these buildings.

Windows are the eyes of a building and they demand glass which permits a clear vision, is of great tensile strength, of glorious lustre, and has no artificial coloring to obstruct the penetrating sun's rays.

Such a glass is Adamston Vertically Drawn Flat Glass—as perfect as Men, Money and Machinery can make it.

Facts about Adamston Window Glass:

- 1 Perfectly flat.
- 2 Graded according to highest standards.
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Edw. James

Burns & James, in accord with other leading architects of America, find Rolscreens best suited for the screening of fine windows.



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cost for
UPKEEP



Built-in cabinets installed by THE GENERAL FIREPROOFING COM-PANY in the Youngstown City Hospital, Youngstown, Ohio, Several hundred of these units were equipped with Monel Metal tops, while all the dressing cabinets in private rooms have baseplates and shelves of Monel Metal. At left: Youngstown City Hospital, Architects: Albert Kahn, Detroit; Morris Scheible, Youngstown, associate.

Monel Metal keeps Cabinets looking New!





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. HOSPITAL employees welcome the cheerful, labor-saving aid of silvery Monel Metal. Doctors and nurses like its look of crisp cleanliness—its always "at your service" appearance which is the outward sign of inherent properties exclusive to Monel Metal.

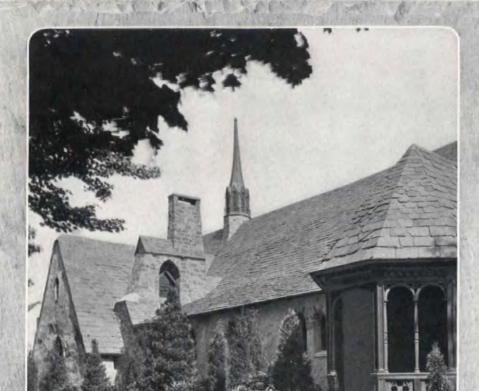
Rust-proof and resistant to corrosion by hospital solutions, Monel Metal cuts cleaning time and labor to such a low point that the saving effected helps pay back the original investment. Moreover, Monel Metal has no coating to chip, crack or wear away, and its steel-like strength guarantees years of flawless service.

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Mann & MacNeille. Architects



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the roofing of church buildings. Every Tudor Stone Roof is especially designed for the building it is to cover, and the slate especially mined and cut at our Vermont quarries for the particular project.

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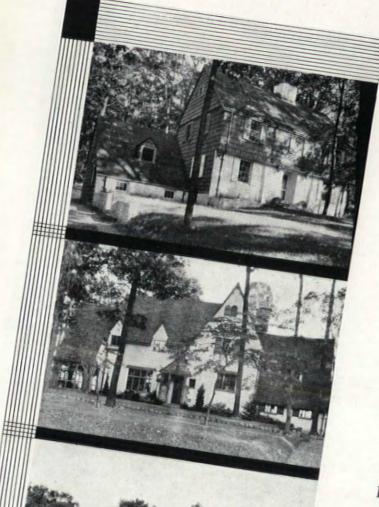
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Architects' Service Department: 101 Park Avenue, New York City

BOSTON

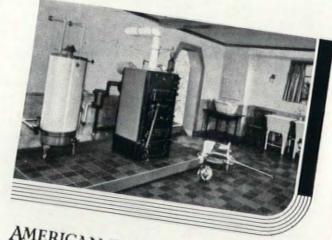


UNUSUAL HOMES THAT ARE AS COMFORTABLE AS THEY ARE ATTRACTIVE





- Were are four homes that are unusual in design, unusual in construction, both outside and inside. But without comfortable, even warmth, they would be dreary.
- The architect who designed these beautiful homes describes them as "four All American jobs of all satisfaction."
- And the owners, who occupy them, all feel that the architect deserves their enthusiastic praise for giving them 100% American Radiator warmth. This is the same experience that architects all over the country are having—evidence that efficient heating has much to do with the final satisfaction of every owner.

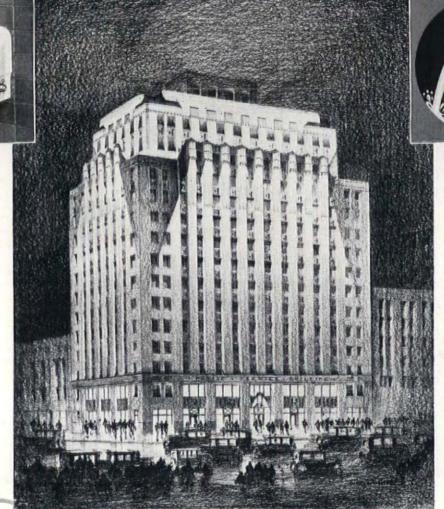


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No. 601
In color, chosen for Central Illinois Public Service Co. building, Springfield, Ill.
Architects...Law, Law & Potter, Madison, Wisconsin.



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Healthy, safe, practical drinking mound formed by distinctive two-stream projector with automatic stream control. Positive sanitation always.

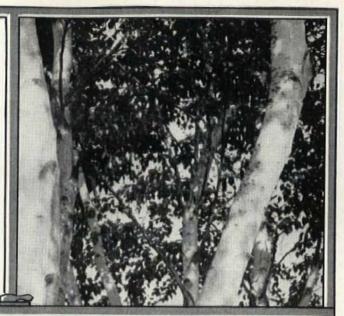
or THIS NEW STRUCTURE

The architects selected Halsey Taylor Drinking Fountains for this Springfield (Illinois) building. The factors that govern their choice ... beauty of design, assurance of sanitation, freedom from servicing... are bound to appeal to the most discriminating architect, builder or owner! Play safe with "the specification for sanitation". ... The Halsey W. Taylor Company, Warren, Ohio.

HALSEY TAYLOR Drinking Fountains

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OLD a piece of Pennvernon Window Glass across the light, and then against the light to see that a great change has taken place in window glass making. A surprising new freedom from waves, streaks and bowed surfaces. A new brilliance of finish. No "right" or "wrong" side. Both surfaces alike.

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A Jennings is installed out of the pit Getting at this Sewage Pumpis no MINER'S JOB!

EVERY working part of a Jennings Suction Sewage Pump is within easy reach. The entire assembly...pump, motor and controls...is installed out on the floor away from the pit. Only the suction pipe is submerged.

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Jennings Suction Sewage Pumps are furnished in a series of sizes to meet all of the usual requirements. Heads up to 75 ft. All sizes are fitted with efficient, non-clog impellers. No screens are required.

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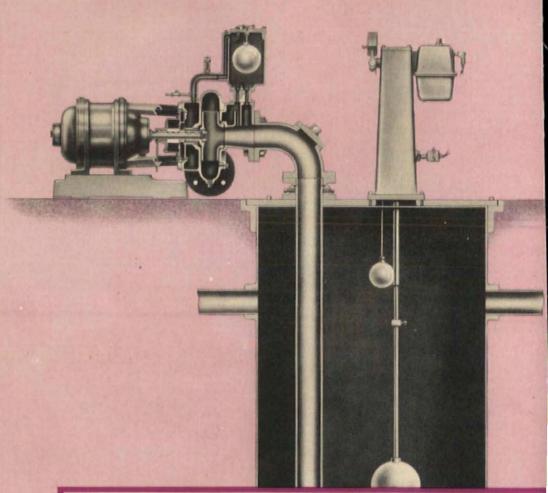
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Pumps





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For this fine cabinet work, Roland Coate, Los Angeles architect, selected Port Orford Cedar. Kitchen of the Jacob Stern residence, Beverly Hills, California.



Spacious Port Orford Cedar linen closets of the M. A. Harris home, Atherton, Calif. Ward & Blohme, San Francisco, architects.

PORT ORFORD CEDAR should be more largely used for cabinet work" declare Berner & Wilson, of London. Smeaton & Hanscomb, also of London, highly recommend this wood.

Proof of its exceptional merits abounds in the many British buildings entirely finished in Port Orford Cedar: Victoria Infirmary, Royal Infirmary, Union Bank of Scotland, North British Mercantile In-surance Co., Ltd., Gleneagles Hotel, Perthshire, Scotland. It is often used for beams and paneling in the larger private homes. British ship builders use it in staterooms of first class passenger liners.

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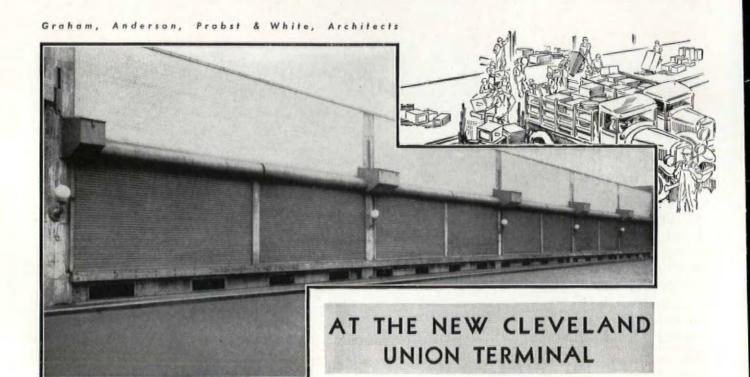
DANT & RUSSELL, INC., Port Orford Cedar Sales Agents, Porter Building, Portland, Oregon. Dept. AR-1030 Please send me free your booklet "Port Orford Cedar—Its Properties and Uses;" also "Fine Interiors with Port Orford Cedar" by Wade Pipes, A.I.A.

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- as usual





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IN Cincinnati, on a lot that originally sold for eight dollars, a fourteen million dollar structure is rearing its 47 stories upward toward the clouds.

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Playing an important part in this progress enabling the successful development of plans—is American Steel & Wire Company Wire Fabric (the steel backbone of concrete).

Recognized as the most efficient and economical means of concrete reinforcement, this product is in general use throughout the nation. An evidence of interest on your part will bring detailed information and literature.



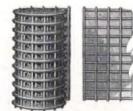
Wire Fabri: being laid on floors of Carew Tower



The Carew Tower, Cincinnati, Ohio—Walter Ahlschlager, Architect, Chicago—Delano & Aldrich, Associate Architects, New York—Starrett Building Co., Contractors, Chicago—Lieberman & Hein, Consulting Engineers, Chicago



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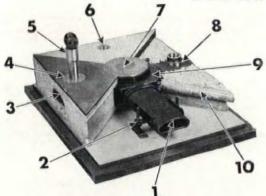
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- Oval crown 1 in. below surface molds strong concrete arch.
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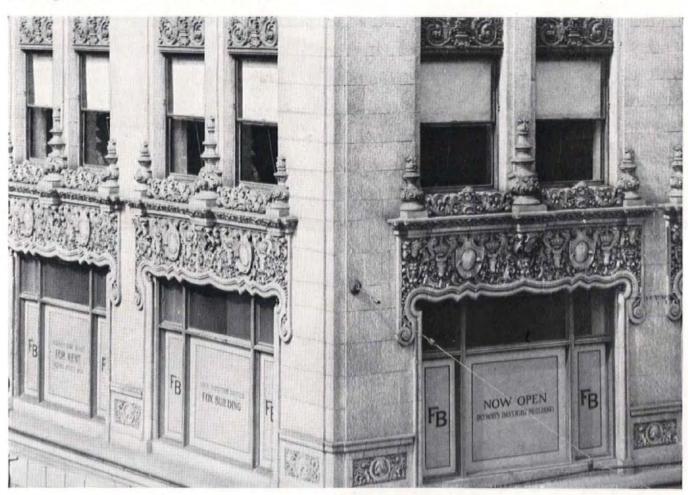
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FOX THEATRE BUILDING; DETROIT, MICH.
C. Howard Crane . . . Architect
Aronberg-Fried Co. . General Contractors

THIS building is completely faced with Federal Seaboard terra cotta. Of unusual interest is the oak bark surface of the terra cotta ashlar. This is also a good example of the high quality of decorative modeling done by our staff.



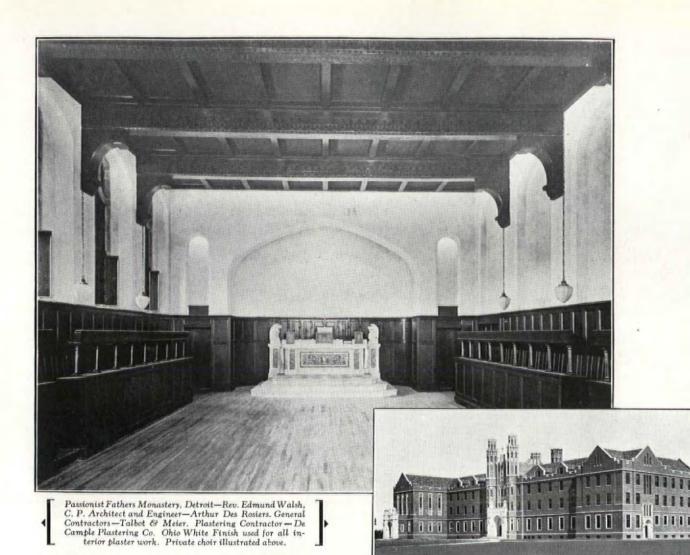
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See page B-1981 SWEETS

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For soil, vent or drain pipes—for every use where pipe is exposed to atmospheric corrosion or to alternate wet and dry conditions—use "Copper-Clude" pipe—it will add many years to the life of the installation.

Look for the Maroon color-Solid on Black Pipe-in two

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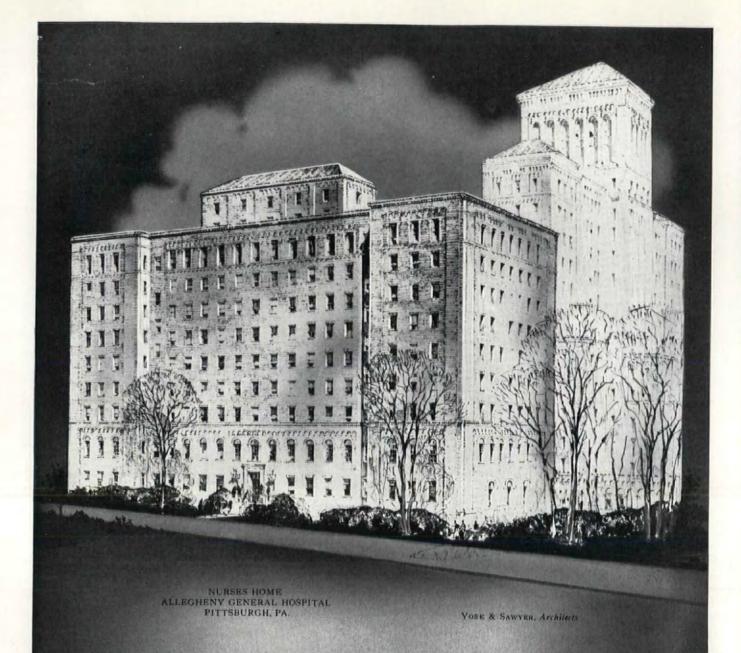
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"Fencraft" Casements are of heavy solid steel sec-

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DETROIT STEEL PRODUCTS COMPANY
2285 East Grand Boulevard, Detroit, Michigan

Factories: Detroit, Mich., and Oakland, Calif. Convenient Warehouse Stocks





This Snead Armor Grid Gangway



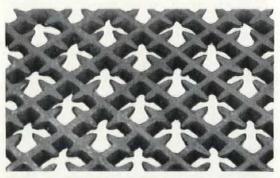
Above is pictured a section of the foundry gangway at a prominent Rhode Island plant. The gangway consists of approximately 5,500 sq. ft. of Snead No. 30 Heavy Duty Armor Grids and has been installed for about two years. A careful inspection recently made revealed the surface to be in really excellent condition despite the terribly heavy traffic to which it has been subjected. We make the prediction that this gangway will be as satisfying 20 years after installation as it is right now.

is in excellent condition after two years of extremely severe service » »

BUT that is not at all unusual when you consider that in 18 years of trying usage no Snead Grid installation has ever worn out or required any maintenance work. There's a record of real efficiency as well as just plain bull-dog strength.

Snead Grids are made of an exceptionally fine grade of grey iron and are acid resistant. The pattern is symmetrical and affords perfect protection against crosswise and longitudinal traffic. The effective armor at the surface of each Snead Grid amounts to 41% of its total area. Many sharp edged lugs projecting into the square openings afford good traction and prevent slipping. As the grids are almost totally embedded in the floor concrete, traffic sounds are deadened. The rib sides are rough and bond perfectly with the floor material, eliminating the necessity for expansion bolts or other expensive anchoring devices.

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SNEAD & COMPANY - Founded 1849

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For larger homes there has really been no problem.

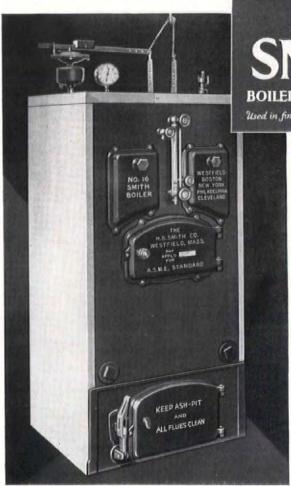
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Now your clients of modest means can enjoy the same heating comfort and the same economy of operation that formerly were provided only for wealthy clients with large homes.

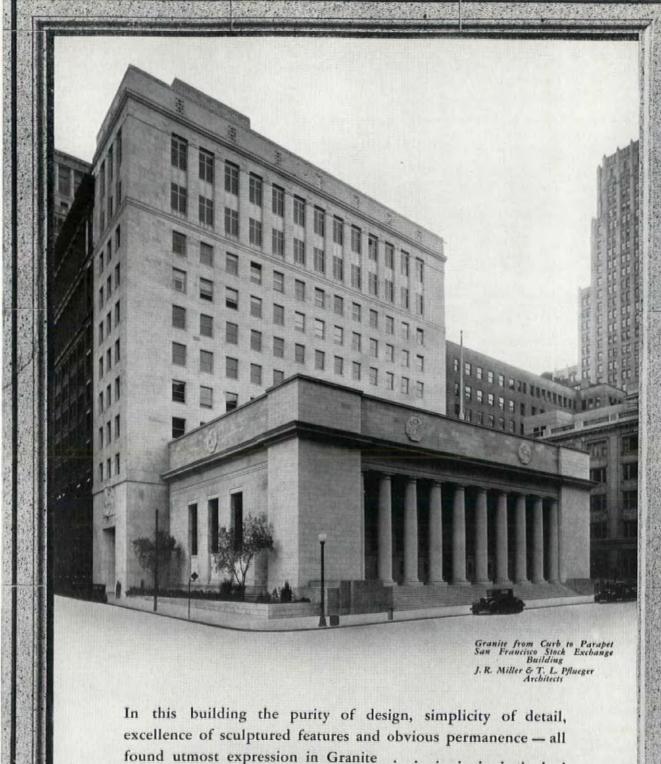
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H. H. Sherman, Secretary

CONTRIBUTORS

John Burnet: English architect and designer of the Royal Institute of Fine Arts, the British Museum extensions.

Corbett, Harrison and MacMurray: architects of the Roerich Museum and Master Apartment Building, published in the December 1929 issue.

Livesay and Wiedemann: architects and engineers practicing in Beaumont, Texas.

Cornelius S. Loder: a hospital consultant with offices in New York.

William Muschenheim: educated in Boston and has worked with Korn in Berlin, Peter Bebrens in Vienna and Joseph Urban in New York.

Swasey and Hayne: Los Angeles architects specializing in banks.

Walker and Gillette: New York architects specializing in banks, office buildings and country bouses.

Weary and Alford: designers of banks and office buildings with offices in Chicago.

Henry Wright: city planner and a frequent contributor to The Architectural Record.

CALENDAR OF EVENTS GENERAL ANNOUNCEMENTS

Oct. 6

October The Department of Architecture of the University of New York will begin a series of lectures on "Promoting and Financing Building Projects."

October International Hygienic Exhibition at Dresden, Germany. Buildings include a model hospital

OctoberNov. 15

and a model housing project.

"Man and Machines," an exhibit representing western industrial civilization, at Museums of the Peaceful Arts, 220 East 42nd Street, New

York City. Exposition and demonstration of road construc-

tion equipment and materials, under auspices of American Road Builders' Association, Washington Auditorium, 19th Street and New York Avenue Northwest and demonstration field, Rock Creek and Potomac Parkway, Washington, D. C.

Oct. 7-10 Annual convention of the Illuminating Engineering Society. Hotel John Marshall, Richmond,

Oct. 8-12 Sixth National Conference of Church Architecture, Cleveland, Ohio.

Oct. 30 Competition for designing bathrooms, sponsored by Standard Sanitary Manufacturing Co. Professional advisor, Howard K. Jones, firm of

Professional advisor, Howard K. Jones, firm of Alden, Harlow and Jones, 2103 Farmers Bank Bldg., Pittsburg.

Nov. 18-29 Art Exhibition, Royal Institute of British Architects, London (9, Conduit Street).

Dec. 1 Competition for "esthetic improvement" in

Dec. 1 Competition for "esthetic improvement" in design of water tanks, sponsored by Chicago Bridge and Iron Works. Albert M. Saxe, 430 N. Michigan Avenue, Chicago, archi-

Dec. 1-6 Ninth National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York City.

April 18-25 Fourth Biennial Architectural and Allied Arts Exposition, Grand Central Palace, New York.

IN THIS ISSUE

HOW THE ARCHITECT MAY CULTIVATE BUSINESS

Meritorious service is the essential means of increasing practice. Knowledge of community needs and economic requirements and an established reputation based on satisfactory completed buildings bring clients to the architect. At the same time there are methods by which the architect can bring himself to the notice of prospective clients. These are outlined in this issue and illustrated by actual cases.

PORTFOLIO OF BANKS

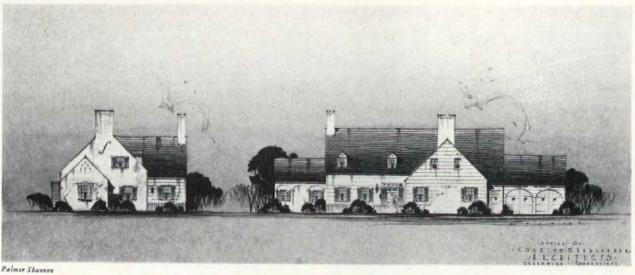
Banks have been selected for their suitability to the chain bank system. Branch banks illustrated show similarities in exterior treatment but with differences in plan.

TECHNICAL NEWS AND RESEARCH: GLASS

This study illustates the varied characteristics and physical properties of glass in its application to buildings and how glass may be used to best advantage on various types of construction. New glasses on the market, including ultra-violet ray glass, are discussed. Standards for judging relative merits of various glasses are set up.

BUILDING TRENDS AND OUTLOOK-NON-RESIDENTIAL BUILDING

This article by L. Seth Schnitman, statistician, continues the survey of building prospects for residential construction, presented in the September issue. In November Mr. Schnitman will discuss economic conditions within the engineering branch of the construction industry in relation to residential and non-residential building. Charts of material price trends are included.



GREENWICH, CONN. . COGGINS AND HEDLINGER, ARCHITECTS

November issue-

THE COUNTRY HOUSE

New trends in country house work are surveyed in an article by Howard T. Fisher, who has been devoting his time to an investigation of requirements for this type of building. His study takes up such problems as heating and air conditioning, and the advantages and disadvantages of various heating systems and fuels; roof terraces and gardens, and methods of waterproofing, surfacing, and insulation; window sizes, and the proper orientation of rooms for sunlight and summer breezes. A check list of requirements is included.

This issue will consist largely of photographs of country houses together with working drawings, plans and brief descriptions. Selections have been made of houses which illustrate the most recent developments in all styles of domestic architecture as well as in all sections of the country. Many new features in design, planning and construction are shown.



RYE, N. Y.
JULIUS GREGORY, ARCHITECT



Padilla Studios SANTA PAULA CANYON, CALIF. WALLACE NEFF, ARCHITECT

Let's UNCOVER the Truth

about Building Papers/ The Strongest Building Paper Made Splits: Tears and Drags Away From the Nails Under Building Strains—Shrinkage and Settling—unless it is resilient

This between wall destruction of ordinary non-resilient building paper leaves wide holes for the penetration of moisture, dirt, wind and vermin and proves that such papers do not protect regardless of their strength.

Illustrated below is a typical example of what happens between walls to even the strongest non-stretchable building papers when subject to building strains. The Building Paper was a well-known brand—reinforced.

The perfect building paper must be Resilient—Waterproof—Moisture-proof and Strong.

Resilient: to stretch and contract under building strains without breaking—Waterproof: to prevent water from passing through—Moistureproof: to prevent moisture from penetrating even its outer surfaces—Strong: to be handled and laid without tearing or scuffing.

ANGIER BROWNSKIN IS A PATENTED PRODUCT, U. S. PATENT No. 1595637—THE FIRST BUILDING PAPER THAT MEETS ALL THESE ESSENTIAL REQUIREMENTS

It is resilient—will stretch as much as 11% in all directions to conform to building distortions without breaking or dragging. It is absolutely water-proof. Even its outer surfaces are impregnated to protect its fibrous texture from the PENETRATION OF MOISTURE. It is strong, flexible and does not tear easily in handling.

Thousands of Architects and Builders have learned that only a resilient, stretchable Building Paper "really protects", and now solve all their building paper problems with Brownskin.

Brownskin is put up in rolls of 500 to 1,000 square feet in 36, 48, and 60 inch widths.

Your samples of Brownskin and further information on this remarkable Building Paper are Ready. Write for them NOW.

ANGIER CORPORATION FRAMINGHAM, MASSACHUSETTES

At left: Proving that non-stretchable building paper, scuff, tear, split and break at the nails under building strains and shrinkage. The house being torn down was quite modern. The building paper a well. known brand.



angier

BROWNSKIN Resilient Building Paper



Illustrating Brownskin the Patented Resilient, Stretchable Building Paper that conforms to All building distortions without breaking.

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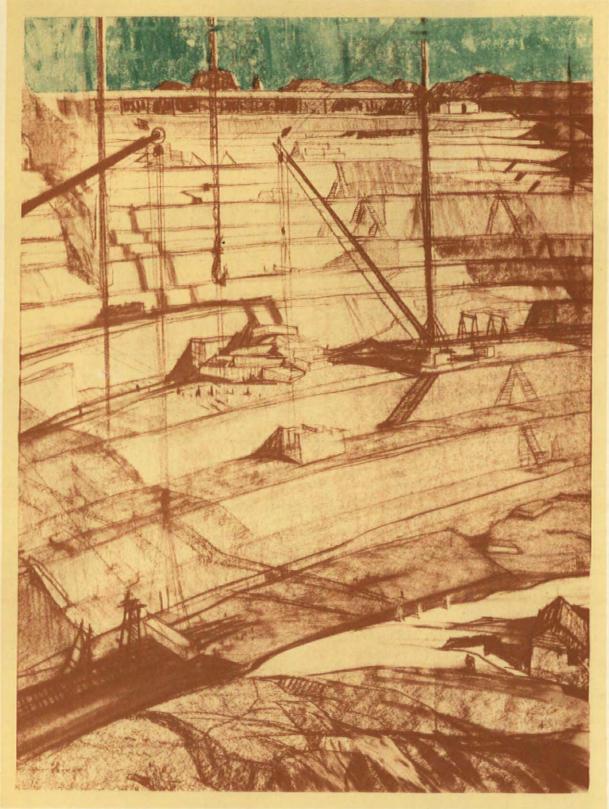
St. Louis

Chicago

Bo

Boston

San Francisco

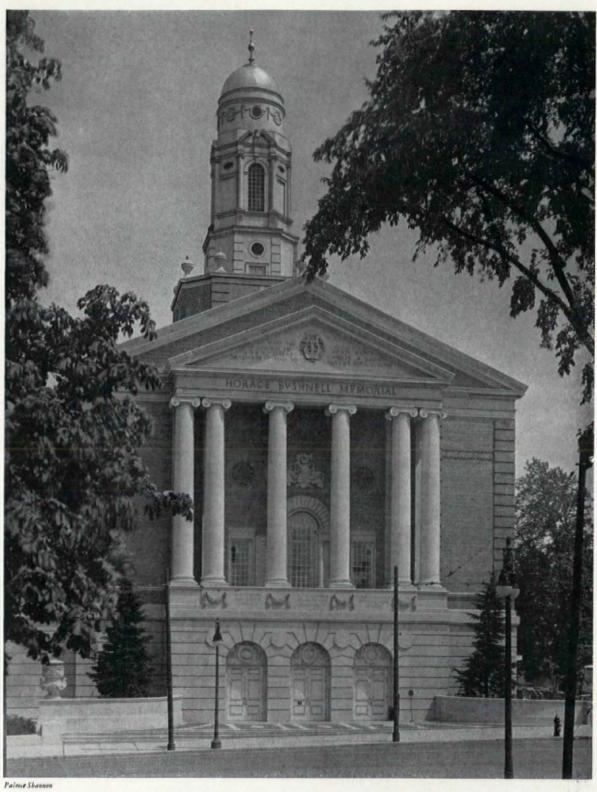


A QUARRY VIEW

This is number one of a series of twelve Drawings made at the Fletcher Quarries by Ernest Born.

GRANITE H·E·FLETCHER CO. WEST CHELMSFORD MASS.





BUSHNELL MEMORIAL BUILDING HARTFORD, CONN.

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF ARCHITECTURE & THE ALLIED ARTS & CRAFTS



VOLUME 68

OCTOBER + 1930

NUMBER 4

THE BUSHNELL MEMORIAL BUILDING

HARTFORD, CONN.

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

The building is a memorial to Horace Bushnell, a leader in civic affairs and one of the main figures in the life of Hartford during the middle of the nineteenth century.

Fronting the building is a large park which Bushnell, by his political and personal efforts, obtained for Hartford, and which has been named for him. In it stands the State Capitol.

PURPOSE

The auditorium, with a seating capacity of 3500, was planned to give a place of assemblage large enough to accommodate the occasional visits of the New York Metropolitan Opera Company, the Philharmonic or the Philadelphia Orchestra.

COST

The building cost \$.65 a cubic foot.

EXTERIOR

The local architecture of New England was selected, which it was thought by the architects would conform with other buildings in Hartford and also with the clients' desire to have the style symbolize the life of their father and grandfather.

Brick and buff Indiana limestone are used for the exterior. The roof is copper.

The tower is used for the specific purpose of holding the fire water tank which had to be 20 feet above the highest point of the stage.

INTERIOR

The vast size of the auditorium made impossible the same scale and type of architecture as the exterior design. An entirely different style treatment but in keeping with the classical precedents was attempted. The difficulties of the problem can be realized by comparing the space enclosed by the auditorium with the largest room developed by the Colonial builders. Even the memorial room on the second floor of this building, which is comparatively small, is larger than any room built in this country during the Colonial period.

The auditorium provides the necessary mechanical equipment and acoustical effects. Perforated panels give sound absorption.

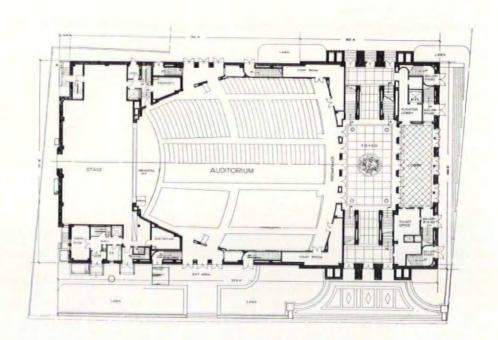
COLOR SCHEME

In the auditorium the lighting is designed so that it can be changed to any color in the spectrum. The walls were therefore kept a neutral French gray and the ceiling painting was done in black, white, gray and gold. The seats and hangings are magenta red, selected by experiments under special lighting conditions.

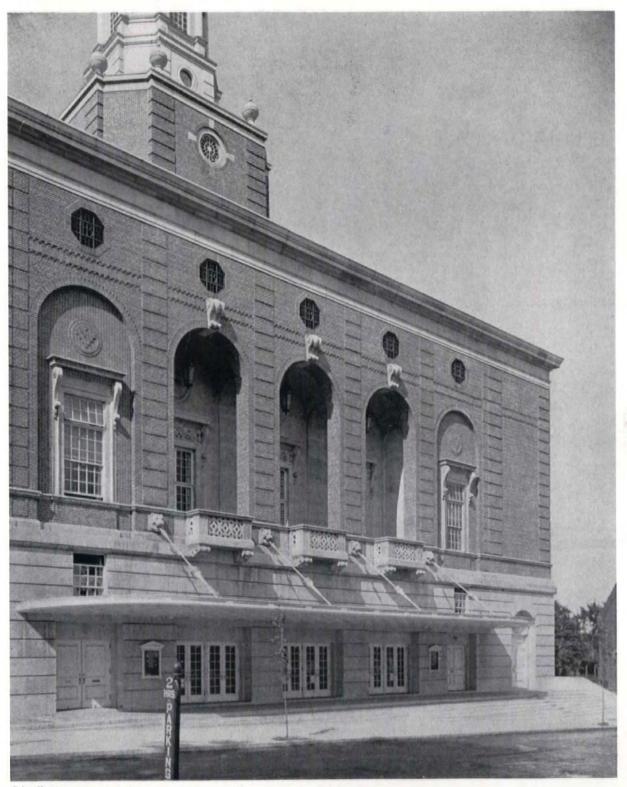
The memorial room is in natural color with the ceiling slightly tinted.



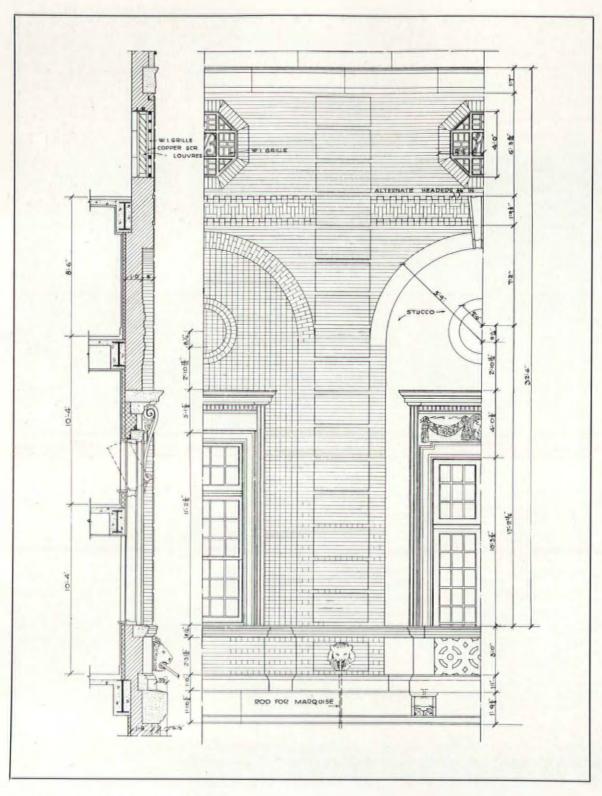
BUSHNELL MEMORIAL BUILDING HARTFORD, CONN. CORBETT, HARRISON AND MACMURRAY, ARCHITECTS



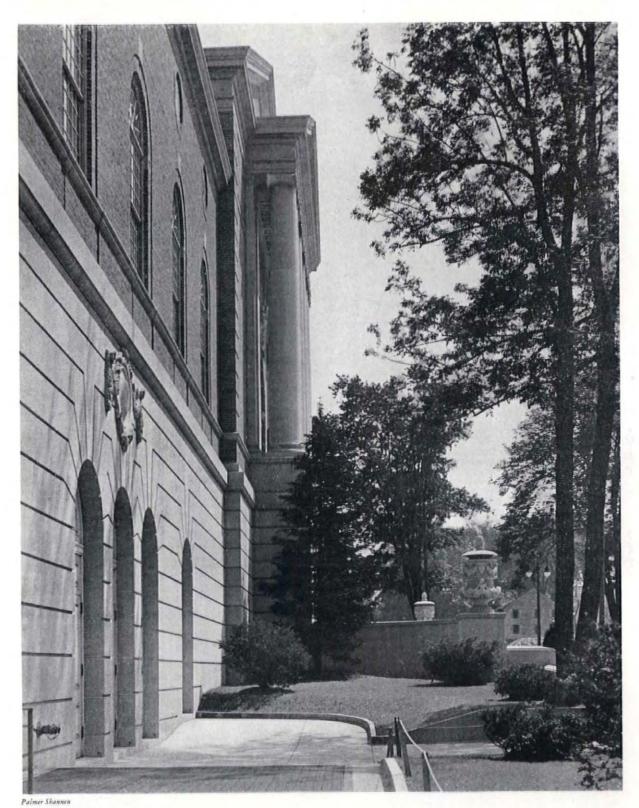
GROUND PLAN



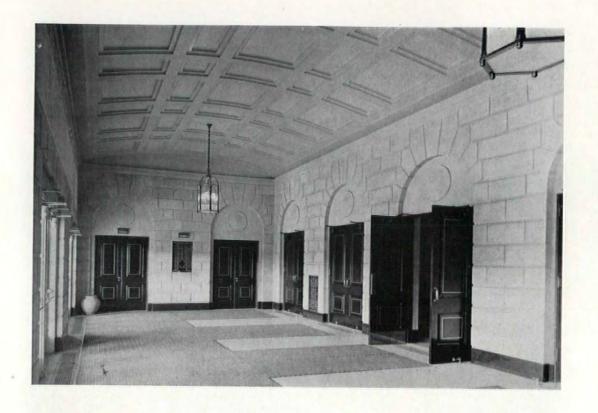
BUSHNELL MEMORIAL BUILDING
HARTFORD, CONN.
CORBETT, HARRISON AND MACMURRAY, ARCHITECTS



BUSHNELL MEMORIAL BUILDING HARTFORD, CONN. CORBETT, HARRISON AND MAC MURRAY, ARCHITECTS



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Palmer Shannon

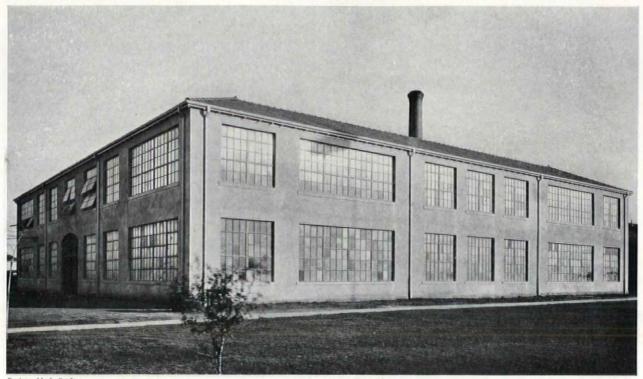
BUSHNELL MEMORIAL BUILDING HARTFORD, CONN. CORBETT, HARRISON AND MACMURRAY, ARCHITECTS



BUSHNELL MEMORIAL BUILDING HARTFORD, CONN. CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

THE SOUTH PARK TRADE SCHOOL BEAUMONT, TEXAS

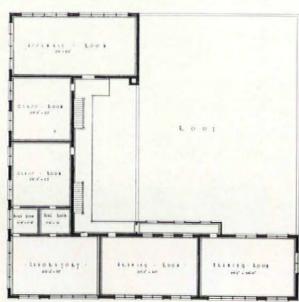
LIVESAY AND WIEDEMANN, ARCHITECTS AND ENGINEERS



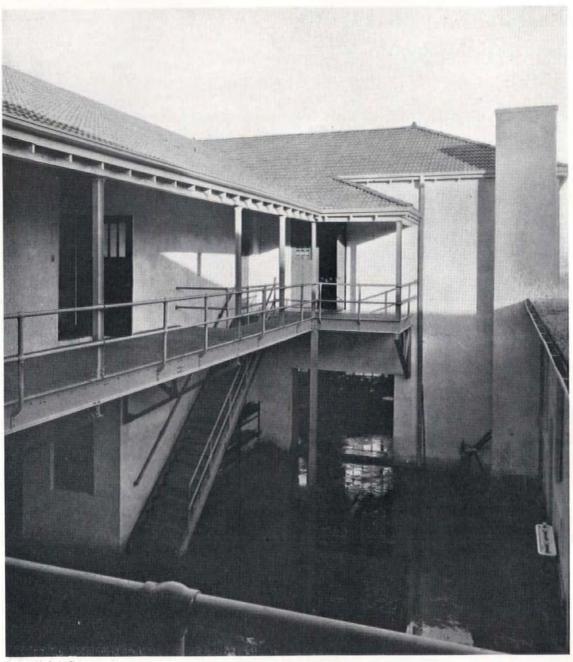
Business Men's Studio



GROUND FLOOR



SECOND FLOOR



Business Men's Studio

SOUTH PARK TRADE SCHOOL, BEAUMONT, TEXAS LIVESAY AND WIEDEMANN, ARCHITECTS AND ENGINEERS

The school provides facilities for 400 trade students including sixth and seventh grade pupils of a neighboring school who are taking prevocational shopwork. The building has no basement. Shop facilities are on first floor, academic and drafting rooms and laboratories are on the second floor. The large expanse of factory window sash gives exceptionally fine light and ventilation.

A wide entrance gives access to courtyard, stairs and shop, and through it automobiles and delivery trucks can go to the repair and auto mechanics shop. Each main shop has accessories rooms for tools and materials. An assembly room on the second floor, 25' x 32', is sufficient for ordinary assembly purposes. Cost of building was \$86,659, or 16c a cubic foot.

CAN THE ARCHITECT PROMOTE MORE BUSINESS?

With each recurrent dip in the economic curve, the architect is reminded of the rather slender footing upon which rests the foundation of his service outlet. A well-maintained office of today requires a more or less constant volume of work merely to meet the overhead. When the second city of the land recently touched the "low" of \$500,000 in total building permits for one of the spring months, we could picture only inadequately the situation in a dozen large architectural offices whose combined overhead must exceed considerably the utmost commissions to be squeezed from such a paltry market. The attention of the profession may well turn from that mass of gratuitous advice of how the architect is to capture for his individual practice the cream of the current business to the question of how to get any business at all. He realizes afresh that his services are dependent largely upon projects promoted by others. Not only does he find himself at a loss to understand or influence the clogged wheels of progress, but in the reduced building market his services are likely to be curtailed as one of the unessential frills which must be dispensed with under the pressure of economic conditions.

Is architecture a luxury or a necessity? If it is unfortunately, and at times unreasonably, classed as the former, to what extent is the architect to blame and what can he do about it? Is he either practically or temperamentally fitted to engage in business promotion? Such promotion, if undertaken, is two-fold: first, in promoting a greater appreciation of his services in a larger part of building work actually carried forward; second, in helping to promote a larger volume of building particularly in slack times such as the present. Both purposes however, are strikingly linked together in actual practice. In order to promote a greater appreciation of architectural service many suggestions have been offered.

It is ethically more appropriate and perhaps more effective for architects to proceed as a group or local chapter rather than as individuals, although it will be frankly admitted that the ripening fruits of such promotion are to be gathered individually by social contact with those who represent the credit necessary to float new projects. This popular cause has been neatly paraphrased in the slogan, "Make the Public more Architect-Minded"! The second and more important phase of promotion is the increase of volume of new building. Should architects individually or en masse directly undertake to engage in stimulating new construction?

Unquestionably a large amount of promotional work has been done during the recent years of plenty. An examination of the results, however, will reveal that a considerable percentage of this promotion has taken place with little regard for either the actual needs of the various classes of buildings projected or the requirements of the regions to be served. Promotion highly actuated by the need of credit outlets for capital has left in its wake a trail of overbuilding—office and loft buildings here, "high class" apartments there, factories elsewhere.

If the architect had greater opportunity to promote, could he do any worse? Could he even do better? What are his inherent opportunities as an architect?

If we are to "Make the Public More Architect-Minded," it may be in order to suggest that we "Make the Architect More Public-Minded". In serving clients as individuals the architect has come to regard his practice, and with it the welfare of the public, as an essentially individualistic procedure. However, looking back to precedents of great architectural accomplishments (to which we have perhaps too long looked back for stylistic inspiration), do

we find these accomplished by individual initiative? Some perhaps, but for the most part they represent community action. Even where the will to create has been centered in the monarch or despot the building has been accomplished through mass belief that it was of value to more than the im-

mediate generation.

Is the appeal to the individual home interest, on which so large a part of our recent promotional effort has been centered, the only "prime mover" on which modern progress can depend? Acquire a home and then realize the deficiencies if your environment has been the unfortunate experience of countless thousands during the past generation. Here is a single problem about which more muddled agitation has been taking place than perhaps any other. Not only is it large enough to occupy a considerable part of the thought of the profession, but it represents by far the largest block of normal building construction and probably the smallest percentage of architectural participation. Some advance may be shown by statistics over the past ten-year period, but does it yet represent more than a fraction of its possible importance to the architect or his possible contribution to the community?

In the recent announcement of a Washington conference on home building there is an indication of some appreciation of the importance of city planning and contingent factors, yet the emphasis has been centered largely on better financing. No one will deny the importance of credit in stimulating home building, but if credit is merely to add more rows of flimsy, monotonous houses to those unfortunate border communities, which remain to us from the great land booms of 1922-26, we could almost wish that such credit might be suppressed. Only one worse fate could be imagined, that new home-owning agitation may again be used as a cloak to open up more miles of unused vacant lots or sparsely populated wastes of cement sidewalks and rusting utility pipes of which we have acquired enough to satisfy even the most

ardent expansionist. Here is a study in regional needs as well as in the changing habits and requirements of the normal family which might well occupy the enforced leisure of local groups in the profession and which, if intelligently directed, might bring forth concrete suggestions, which could be put into operation as a result of

the projected conference.

There remains a third factor to the present dilemma. To what extent is standardization and the constantly increasing size of individual projects reducing the quantity of architectural service in relation to the volume of building? If, as it is claimed, one single building now under construction in New York City will furnish the total amount of new office space needed to meet one year's normal business growth, is this trend favorable to professional prosperity? Granted the inspiration and satisfaction in the fact of doing well a gigantic structure, does not this great pile, even with its lobby and significant bronzes, represent more uniformity than a dozen equally simple and effectively designed structures representing a corresponding total expenditure? This is suggested only as an abstract speculation, which, however, might lead the Institute through an active committee to discover over a period of years some of the economic principles which should underly the disposition of commercial structures in relation to eventual civic economics. We may safely take the chance that these will vary from the current deduction of minimum skyscraper sizes based upon the immediate relation of rentals to existing land prices in large cities. However, we may inquire to what extent the architect heedlessly falls into the general movement toward bigger and therefore "better" buildings. I have in mind a certain commission for the building of a large private school in which working plans were under way for a single main building containing a multitude of halls and stairways, when one of the designers suddenly had a "hunch" that a series of smaller units would be more economical and practicable. The result was

a far more satisfactory and interesting project fitted with much painstaking care into a difficult though effective site. The architects were required to perform a greatly increased amount of service in relation to the total expenditure, although the latter was probably less in actual dollars and certainly much less in relation to usage value in the conduct of the school than would have been the case if the building had been completed under the more stereotyped design. Although such services might not prove

normally advantageous under minimum ethical charges, I leave to the reader the question to what extent the architect may profit over a period of years by contributing more generously not only to that side of planning which can be expressed in terms of design and specification, but also to that equally important field related to the basic needs of humanity in which he will scarcely duplicate the efforts of those engaged in the more usual channels of promotion.

HENRY WRIGHT

HOW ARCHITECTS MAY CULTIVATE BUSINESS

VALUE OF ARCHITECT MEASURED BY SERVICE

The cultivation of business for the architect resolves itself into a scientific study of what the architect can do. In many instances the failure of architects to attract new business is due to a lack of organization or insufficient consideration of the variety of services which an architect could and should render. Investigation will indicate that architects who are achieving an increase in business are the aggressive individuals who seek out their commissions. They investigate and develop new enterprises with all the energy and accuracy that modern business practice makes possible. They establish confidence by the success of their completed buildings-1 success that is more often practical than esthetic. In the development of their projects they assure themselves and their clients that the venture is financially justified. They take a cue from the business man and the manufacturer and realize the value of exhaustive preliminary research study of the client's problems in the light of facts scientifically gathered.

MEASURING THE NEED FOR ARCHITECTURE

In order to render a wider and more general service the architect must thoroughly understand his locality, whether large or small and also the potential demand or necessity for new buildings and building enlargement.

STUDY OF COMMUNITY

Determine the potentialities for constructive improvement and consequently for commissions. Of even more importance, assume a leadership in shaping the community growth by informed acquaintance with all the factors that make for better city growth and improved planning and design of buildings.

It is imperative that the architect should undergo a period of educational prepara-

tion under the following items:

I. Study the existing plan of his community. He should acquaint himself with the latest practice in town planning abroad and in America. He should undertake the preparation of a scheme of town development.

2. Study present and past building progress in the locality and elsewhere so as to anticipate need for stores, offices, schools, churches, garages, civic improvements. He will find that a growing section gives promise of increasing building needs, while a section that is decreasing in population is ordinarily oversupplied and requires few improvements.

3. Survey housing requirements in order to determine housing needs or excess.

4. Study population movements.

- 5. Survey labor and building materials costs.
- 6. Acquaint himself with transportation facilities and needs in relation to city growth. The traffic problem, allied to transportation, is one of the most serious and important of problems confronting city governments; and there is no group of persons more concerned in the need for traffic improvement and its relation to building than architects.

7. Study and endorse improved planning of houses and other buildings for greater convenience and improved health.

8. Study and endorse newer construction methods and new materials if better.

SERVICES WHICH AN ARCHITECT SHOULD RENDER

1. Assume a leadership in civic affairs.

2. Sponsor zoning that will contribute to a systematic and balanced growth of the city.

3. Serve as advisory architect to community, to industry, banks, corporations and individuals.

4. Master requirements of all city, county and state ordinances as they apply to building, health and fire protection.

5. Prepare financial "set-ups" for clients to ensure security of building investment.

6. Prepare plans and specifications.

7. Make exhaustive investigation of the use of a site or development of plans to ascertain all possibilities for the utmost success of undertaking.

8. Supervise construction.

PROMOTION

Here are some of the methods in common use by architects in getting business:

1. Influential social connections, political friendships, financial interest (owning stock in corporation concerned in building).

2. Firm prestige, successful outstanding

buildings.

3. Direct solicitation.

4. Follow-up of former clients. The successful accomplishment of buildings for clients may prepare the way for new projects, additions, or recommendation to other clients.

5. Leads from real estate brokers.

6. Specialization. Building up a reputation on a type of building such as schools, churches, residences, hotels, loft buildings. The leadership of such an architect will be based on experience, lower cost due to quantity of construction and shortcuts acquired by experience. It is easier to solicit and gain commissions on the basis of work done. Specialization makes for greater efficiency in layout.

There are disadvantages in specialization, such as fluctuation in demand for buildings of one type, resulting in costly lulls. Office force trained in one specialty will show less competency in a new field.

7. Use of construction reports. The announcements of new projects are sometimes made before an architect is selected and may by direct solicitation lead to commissions.

8. Personal promotion of projects in cooperation with others. Apartment houses, office buildings, residential subdivisions are sometimes developed and partly financed by architects.

9. Advertising services of architects in a locality. The primary purpose of cooperative advertising is to promote education of the public as to the value of the architects' services.

10. Competitions. The winning of competitions may mean recognition of ability and other jobs.

11. Remodeling of abandoned or rundown properties, with modernization of utilities and improvement of plans and exteriors.

12. Group practice. The unified efforts of architects have frequently been successful in acquiring school and public improvement projects. Architects have come to realize that the prosperity of the individual depends in a large measure on the prosperity and energy of the group.

13. Restudy of abandoned schemes with a

better solution or a more economical system of construction or finance.

14. Sponsoring new buildings in a community where investigation discovered the need for such buildings. The success of a

type of building in a neighboring community has sometimes suggested the desirability of a similar building in the architect's locality.

A. LAWRENCE KOCHER

CASES:

HOW ARCHITECTS DEVELOP BUSINESS

BUSINESS ANALYSIS

Example: Shreve, Lamb and Harmon, architects.

Success, according to this architectural firm, means proven ability not only to design and build but also to conceive and execute the entire project in a *profitable* manner.

Preliminary designs by this architectural firm are done on the typewriter as well as on the drafting board. The client's problems are ascertained and analyzed: value of property, preferences for certain types of office space in particular localities, probable rental value of floor space as determined by the owner or his rental agent, set-back requirements and similar factors are considered. Given the cost of the plot and the rental demanded, the architects analyze the ratio of floor space to plot area required to return the desired income, making due allowances for financing, initial vacancies, maintenance, et cetera.

The extent of this procedure is illustrated by Mr. Shreve's answers to questions asked by newspaper reporters as to what materials would be used for the exterior and where the entrance would be in the new Empire State building. In each instance Mr. Shreve replied that he did not know and bringing out a typewritten sheet with a column of figures, and remarked, "This is the design for the building."

This procedure of designing an incomeproducing building for office space, according to Mr. Shreve, has not always been the point of view of the architect. A sound analytical approach to any architectural problem is more important than specialization in any one type of architectural work, he believes. The technique applied to analyzing an office building can also be used in designing a school building, a library or a bank.

ALTERATIONS OR NEW BUILDING?

Example: Robert D. Kohn, architect.

It is essential for the architect, according to Mr. Kohn, to be able to reduce the cost of a new building to terms of yearly carry-

ing or rental charges.

In the case of Macy's Department Store, the owners wanted a recently acquired building remodeled and connected with their existing store. Mr. Kohn made sketches and estimated the cost of doing this work. At the same time he prepared sketches and cost estimates for a new building. Both estimates were reduced to an annual carrying charge or rental basis and showed the owners that it would be possible for them to have a new building which would eliminate objectionable features, such as exposed sprinkler systems and differences in floor levels between the two buildings, for an additional yearly carrying charge of 60 cents a square foot. With the proposition submitted in this form the owners decided to construct the new building.

Mr. Kohn emphasizes the necessity of architects being able to estimate correctly the cost of a job so that the client will not be annoyed in meeting a final bill much higher than anticipated. A fairly accurate cost estimate can be prepared in cooperation with contractors and an allowance added for contingencies.

R. L. DAVISON

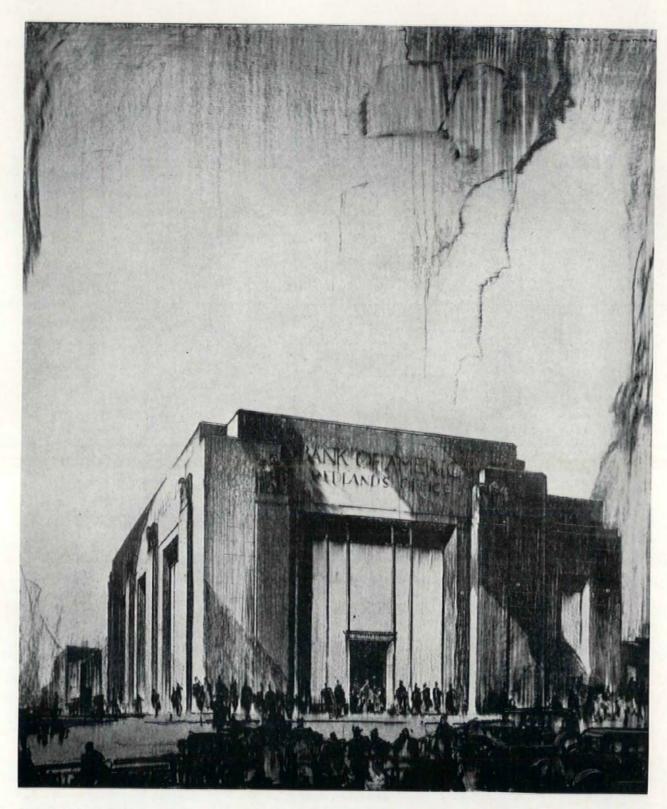
PORTFOLIO OF BANKS



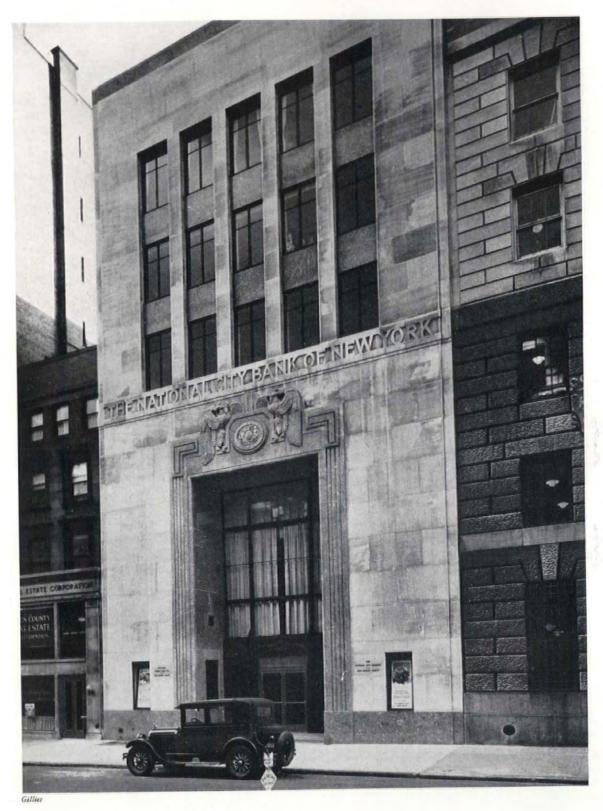
BANK OF AMERICA BAKERSFIELD, CALIF. SWASEY AND HAYNE, ARCHITECTS

BRANCH BANKS

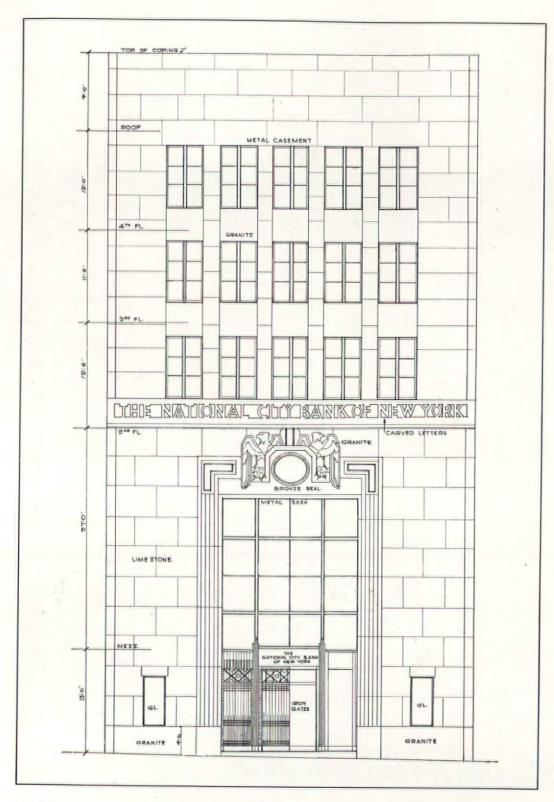
Examples of banks in this PORTFOLIO have been chosen for their suitability to the chain bank system. Similarities in treatment of exteriors, whether in this country or in Panama or South America, are readily apparent. Plans, however, differ for the different requirements of the branch banks.



BANK OF AMERICA REDLANDS, CALIF. SWASEY AND HAYNE, ARCHITECTS



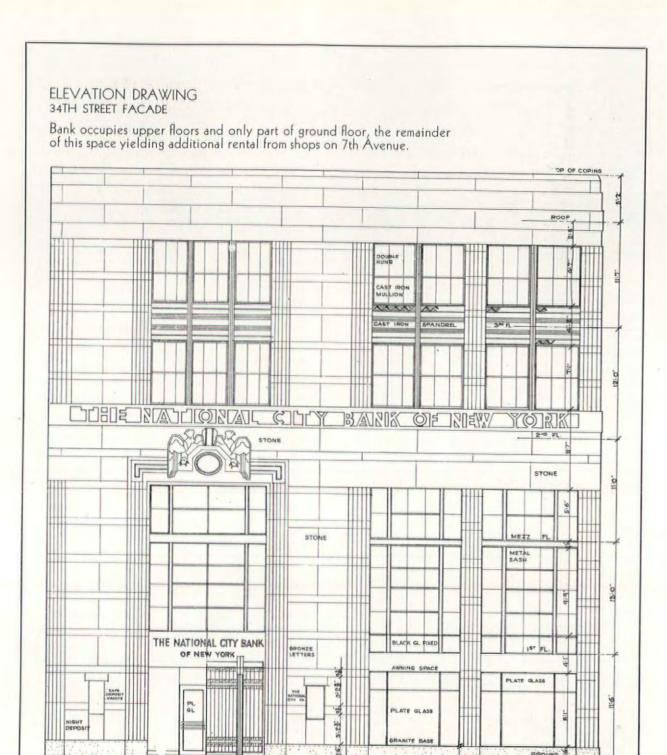
NATIONAL CITY BANK OF NEW YORK BROOKLYN, N. Y. WALKER AND GILLETTE, ARCHITECTS



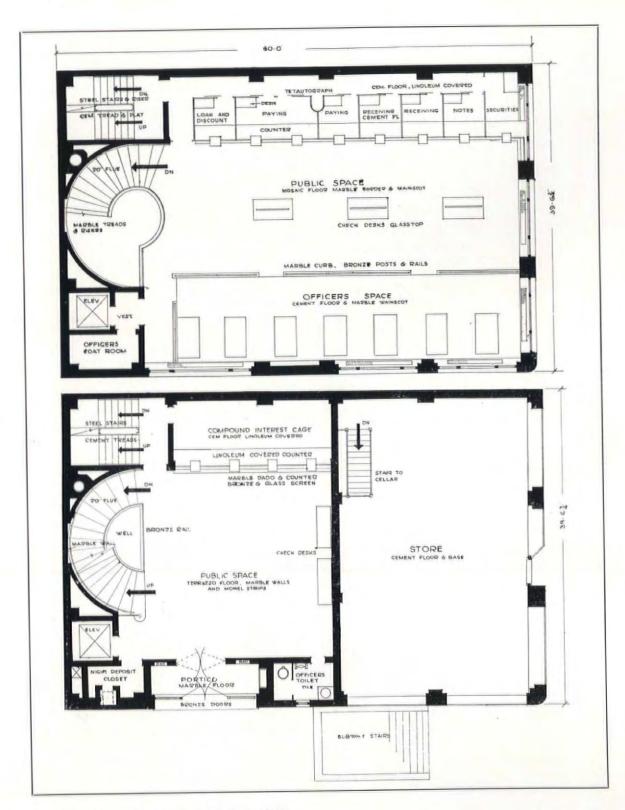
NATIONAL CITY BANK OF NEW YORK BROOKLYN, N. Y. WALKER AND GILLETTE, ARCHITECTS



NATIONAL CITY BANK OF NEW YORK BROOKLYN, N. Y. WALKER AND GILLETTE, ARCHITECTS



NATIONAL CITY BANK OF NEW YORK 34TH STREET AND 7TH AVENUE, NEW YORK WALKER AND GILLETTE, ARCHITECTS



NATIONAL CITY BANK OF NEW YORK 34TH STREET AND 7TH AVENUE, NEW YORK WALKER AND GILLETTE, ARCHITECTS



Gillies

NATIONAL CITY BANK OF NEW YORK 34TH STREET AND 7TH AVENUE, NEW YORK WALKER AND GILLETTE, ARCHITECTS

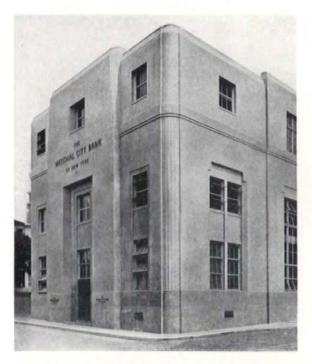


Gillies

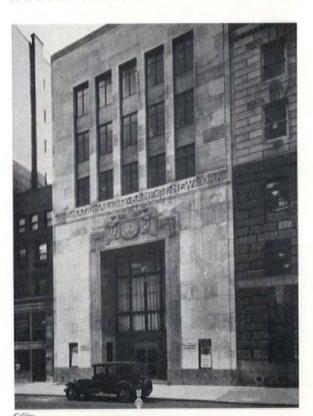
NATIONAL CITY BANK OF NEW YORK 34TH STREET AND 7TH AVENUE, NEW YORK WALKER AND GILLETTE, ARCHITECTS



NATIONAL CITY BANK OF NEW YORK 34TH STREET AND 7TH AVENUE, NEW YORK WALKER AND GILLETTE, ARCHITECTS

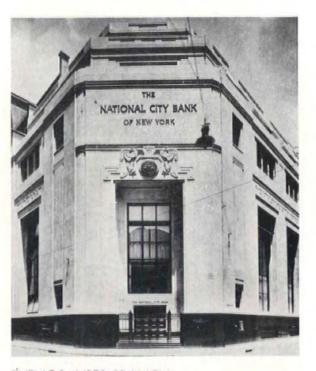


PANAMA BRANCH



BROOKLYN, N. Y., BRANCH

NATIONAL CITY BANK OF NEW YORK WALKER AND GILLETTE, ARCHITECTS



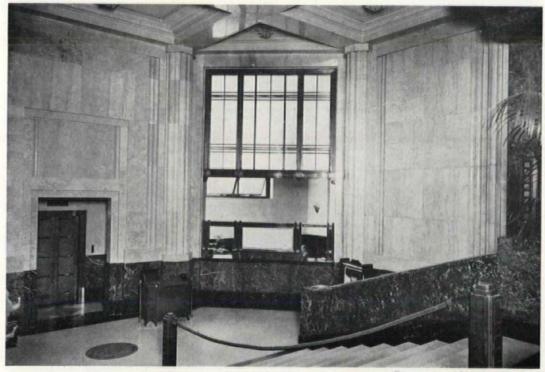
BUENOS AIRES BRANCH



NEW YORK CITY BRANCH

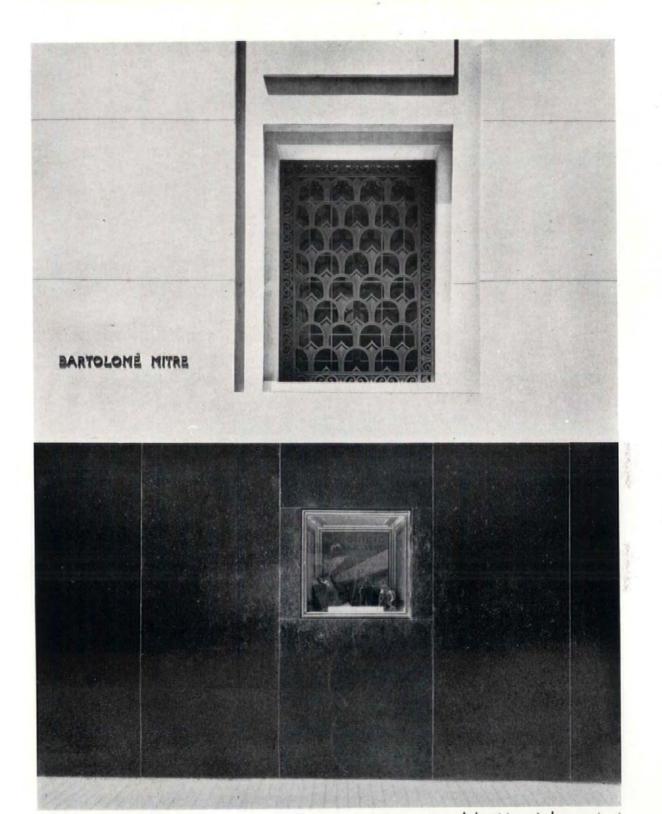


Main banking room



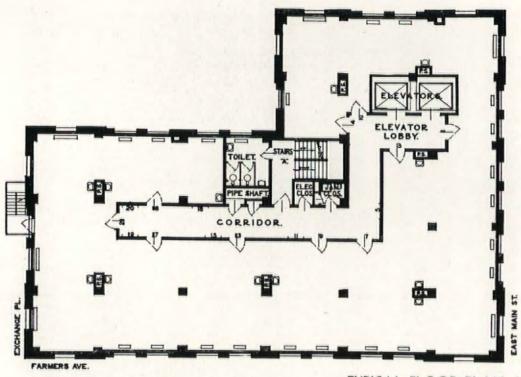
NATIONAL CITY BANK OF NEW YORK PANAMA BRANCH WALKER AND GILLETTE, ARCHITECTS

Foreign exchange window

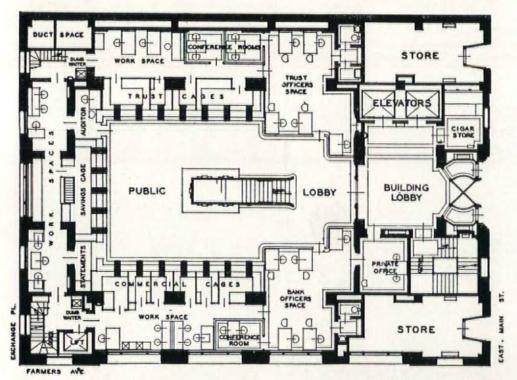


NATIONAL CITY BANK OF NEW YORK PANAMA BRANCH WALKER AND GILLETTE, ARCHITECTS

Advertising window on street



TYPICAL FLOOR PLAN

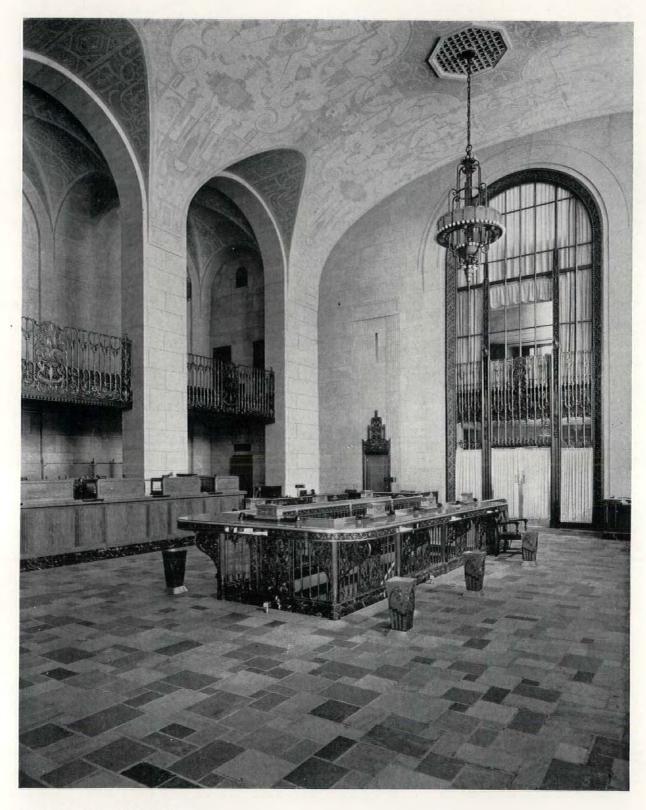


FIRST FLOOR PLAN

BANK OF KALAMAZOO KALAMAZOO, MICH. WEARY AND ALFORD, ARCHITECTS



BANK OF KALAMAZOO KALAMAZOO, MICH. WEARY AND ALFORD, ARCHITECTS



BANK OF KALAMAZOO KALAMAZOO, MICH. WEARY AND ALFORD, ARCHITECTS

ARCHITECTS'

By VICTOR GIFFORD



DENNISON AND HIRONS

The plan titles of architects not only set the stamp of genuineness upon drawings, but they frequently disclose individuality of architect. Although titles in the form of cartouches are obviously an expensive flourish to the actual drawing, and necessitate additional drafting which otherwise might be spent to better advantage, nevertheless in many cases they embellish the drawing.

The title of Dennison and Hirons is of the classical order, having a cartouche flanked by two nude figures and surrounded by Louis XV scroll design. The initials comprise the center motif: two D's face each other with a horizontal bar running through the center, forming an H.

The plan label of McKim, Mead and White is of classical design, characteristic of the work of this firm of architects.

Architects do not confine themselves to one style of title design, as shown by the two examples by George B. Post and Sons. The label of Leigh French, Jr., is very characteristic, the quill being symbolic of his ability as an author on architectural subjects and the dividers, pencil and triangle, all interwoven by a ribbon, showing his profession as an architect.

Cross and Cross, architects of the Barclay Hotel, designed a title for their exhibition drawing which the hotel later used on the linen and silver. The designer of the thistle emblem and scroll evidently had in mind the fact that the owner of the hotel was of Scotch ancestry.

The cartouche and ribboned title by the firm of Goodwillie and Moran shows a design with a center motif appropriate to the drawing it was to adorn, the R being the surname initial of the owner.

An interesting label, denoting the architectural profession, is that of the firm of Delano and Aldrich. A protractor very appropriately designates the letter D, and a pair of dividers an A.



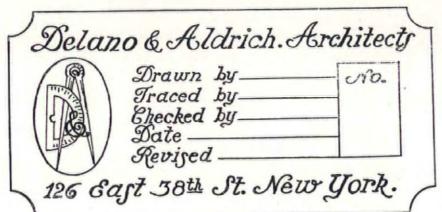
ARCHITECTS' INSIGNIA



House at Clandome & I. L. Kor Mrs. Madeleine Reinhardt



GOODWILLIE AND MORAN ARCHITECTS



Design for a stamp which saves time in drafting.

The present tendency is toward simplification in drafting. The cartouche type, although artistically presented, requires too much painstaking work and time, and is not as informative as the average working drawing label.

34 INCH SCALE DETAILS OF END BAYS ABOVE 11TH FLOOR

MATERIALS STONE	EXCHANGE BUILDING FOR THE NEW YORK CURBEYCHANGE REALTY ASSOCIATION III 12D GREENWICH ST & 78-86 TRINITY PLACE		P92 TR WIN DRAWING NUMBER		
MINIM T C TILE			REVISEDWARCH 430		FEB 1,1930
	STARRETT AND VAN VLECK	ARCHITECTS NEW YORK CITY	PASTERS	APPRO	OVED

ARCHITECTS' INSIGNIA



AN ENGLISH GARDEN VILLAGE

SILVER END, WITHAM, ESSEX

In 1926, as the result of the acute housing shortage, the Crittall Manufacturing Company, Limited, began building operations for a garden village midway where employees could live within easy distance of their work.

For this project buildings were designed by Sir John Burnet and Partners, James Miller, C. Murray Hennell, C. H. D. Quennell, Joseph Clare and G. E. Clare, architects.

FIVE HOUSE TYPES AND COSTS

The village comprises 400 completed houses, all with large gardens and built no closer than ten to the acre. These houses can be broadly classified into five types:

Managers' houses, sold at prices ranging from \$6,500 to \$8,550;

Detached four-bedroom houses, \$3,800; Detached parlor houses, \$3,400;

Parlor houses (containing parlor, kitchen, scullery, three bedrooms, and bath), from \$2,100 to \$2,600;

Non-parlor houses (containing three

bedrooms), from \$1,650 to \$1,950.

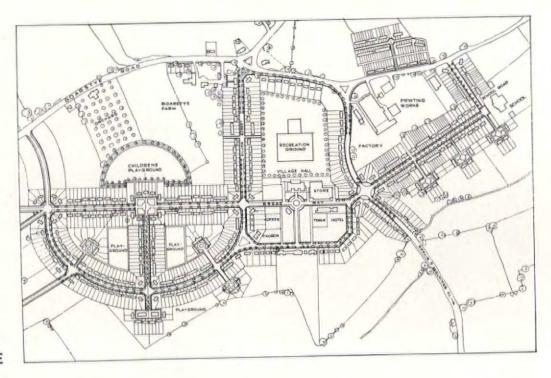
The majority of these houses have been sold to the tenants on a 20-year purchase system, the weekly purchase rental being approximately \$4 for the non-parlor type and \$4.50 for the parlor type. This price includes water and ground rent.

VILLAGE FEATURES

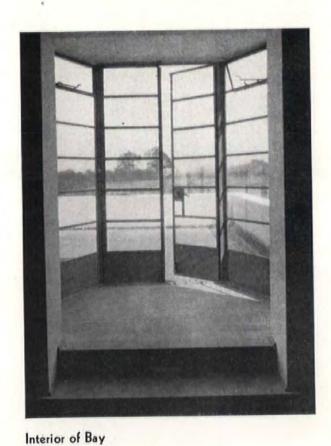
Since the beginning of the project additional surrounding lands have been purchased, forming an agricultural belt of approximately 700 acres where food is produced for the village.

In the center of the village is a large department store where the products of the village are sold to the inhabitants. This store serves for butchery, bakery, drapery, grocery provisions, furniture, drugs, outfitting, et cetera. There is also a fully licensed hotel with 16 bedrooms.

The village water supply is pumped in from a spring two miles away. A power station using oil engines supplies the village and factories with power and light.



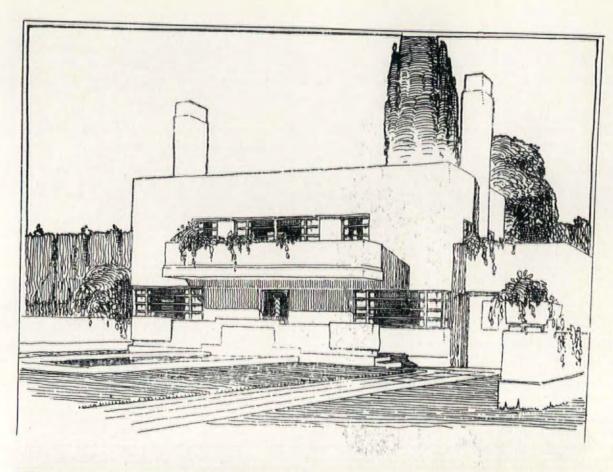
PLOT PLAN OF VILLAGE



SILVER END GARDEN VILLAGE ESSEX, ENGLAND JOHN BURNET AND PARTNERS, ARCHITECTS

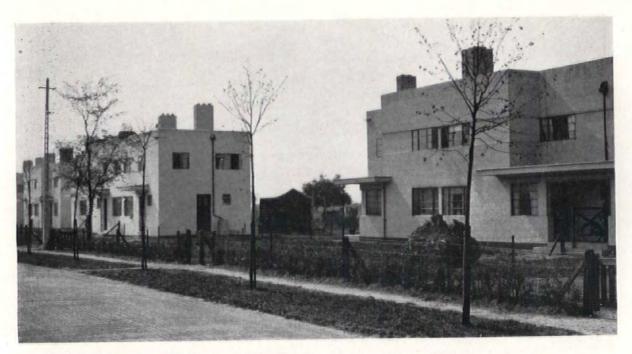


Exterior of Bay





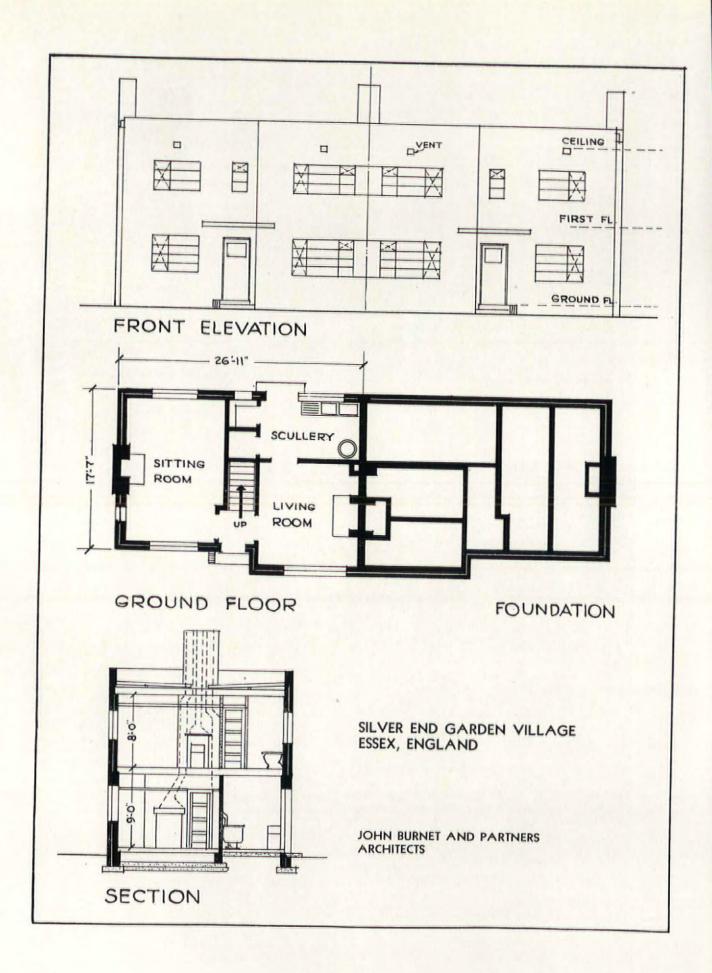
HOUSES AT SILVER END GARDEN VILLAGE ESSEX, ENGLAND THOMAS S. TAIT OF JOHN BURNET AND PARTNERS, ARCHITECTS

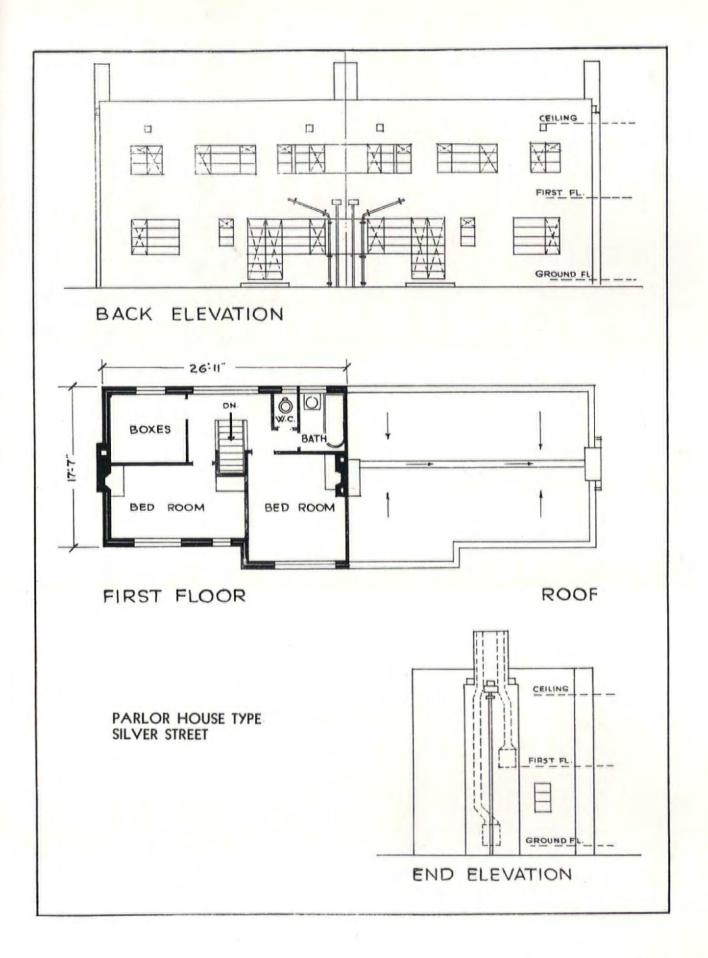


HOUSES ON SILVER STREET



GENERAL STORES AT SILVER END GARDEN VILLAGE ESSEX, ENGLAND JOHN BURNET AND PARTNERS, ARCHITECTS

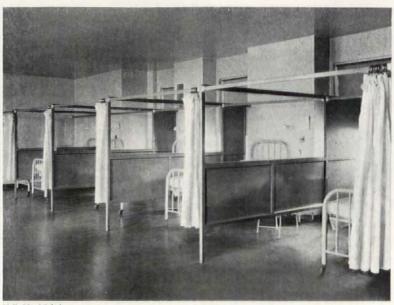




Each cubicle is amply provided with light from an individual window.

CUBICLES IN HOSPITALS

CORNELIUS S. LODER



Mills Metal Cubicles

Cubicles are now in use in 80 per cent of our hospitals. Their installation can be accomplished without extensive cost.

When installed in old buildings they only slightly increase weight; they are fireproof and may reduce the fire insurance premium. On the other hand, in the planning of a ward for patients' beds, additional space would be required if cubicles were used. Thus, if a large open adult ward were to be constructed for cubicles, the floor area per cubicle bed would be increased from about 75 sq. ft. to about 105 sq. ft., and the number of beds would be reduced from about 45 to 35. This would increase the cost from about \$500 to \$650 a bed. The estimated cost, including installation, for eight cubicles is about \$750 or about \$95 a cubicle. However, the advantages offered by cubicle service are unique and in many cases indispensable.

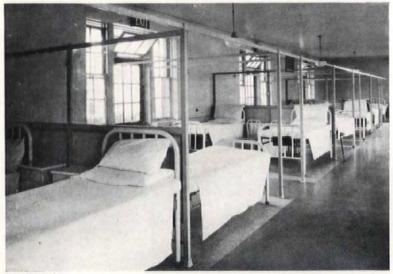
The best type of cubicle has walls 7 ft. in height; the walls rest on legs of steel firmly fastened to the cement or other hard material floor. The space between the cubicle wall and the floor should be 12" to 18", preferably 16", to allow for the convenient cleaning of the floor. The fourth side of the cubicle is usually open, and when privacy is desired, a curtain hanging on a rod can be drawn across the opening.

The cubicle walls have been extended to the ceiling only in exceptional cases in order to keep out odor or noise. This additional height increases the cost.

Cubicle walls are generally made of metal and the upper part, from the level of the patient's head, of glass. The wall length of an adult's cubicle is from 7 ft. to 12 ft., depending on the corridor space available. The width of the cubicle is 7 ft. to 10 ft. The size of a child's cubicle is 6 ft. by 5 ft. The glass panes in the upper part of the wall in a child's cubicle can be made smaller or possibly thicker in order to lessen the risk of breakage. In children's wards the use of wired glass is very appropriate.

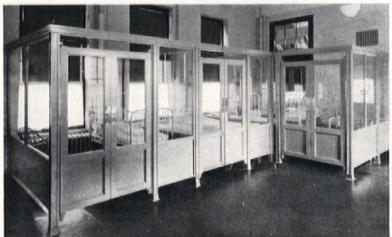
Ventilation, heating and lighting of cubicles is important. Cubicles located in the center of a ward are not so well ventilated as those placed along the sides and opening into the center of the room. Each cubicle should have its own window; in the reconstruction of wards in old hospitals this is sometimes rather difficult to arrange. It is very seldom that patients in two different cubicles sharing one window agree upon the ventilation. A modern cubicle should also have its own radiator, if possible, and hot and cold running water. A cubicle can

be furnished like a private room. Bright



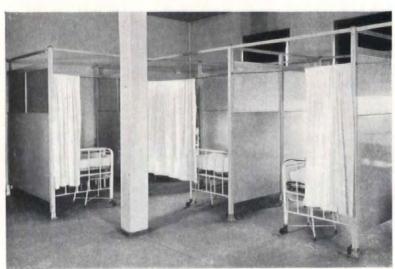
Four-bed cubicles in a large ward, Considerable privacy and isolation is secured without any loss of light.

Mills Metal Cubicles



These cubicles in the children's ward of a hospital in Boston have glass doors so that visitors need not enter the cubicles but can observe the patients from outside.



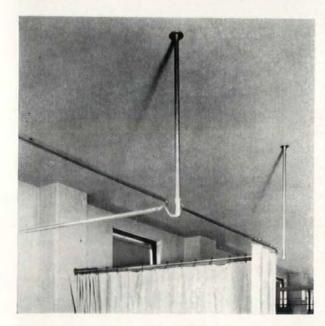


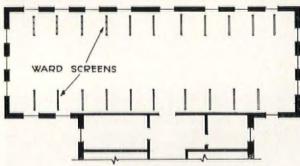
Hospital in Braddock, Pa. Cubicles have opaque glass in upper part of walls. Curtains hang on heavy wire.

Sanymetal Products Co.



N. L. Judd Co.





FRENCH HOSPITAL, NEW YORK CROW, LEWIS AND WICK, ARCHITECTS

and cheerful colors can be chosen for floor-covering, walls and furniture.

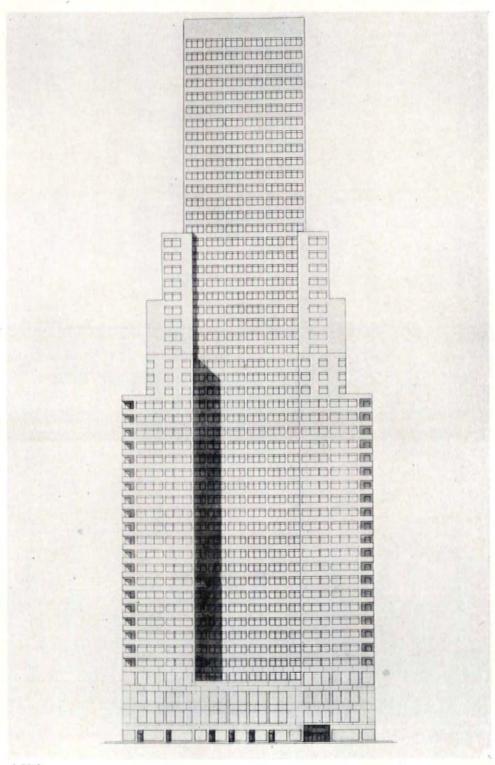
For the upper part of the cubicle walls either ordinary glass or ultra-violet ray glass permitting the transmission indoors of the invisible and beneficial rays of the sun can be used, especially in obstetrical rooms where complete privacy is desired. On the flat hospital roof cubicles can be built entirely of ultra-violet glass; they can also be installed on piazzas and piazza roofs or on the grounds.

The cubicle offers sociability. A small glass door can be arranged in the window pane in the upper part of the wall near the patient's head and opened at certain times, permitting the patients to converse with each other. When so desired these panes can be closed. This is a desirable arrangement in children's wards.

Another advantage of the cubicle system is in controlling cross-infection. This fact is of greatest importance in children's hospitals.

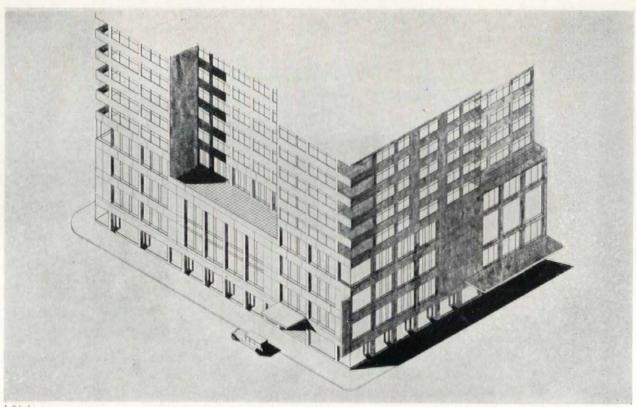
For hospitals which, at the present moment, can afford only the very smallest expense for the building of cubicles, there is the possibility of installing the cubicle frames, and in place of walls curtains of various materials on non-stretchable wire or rod can be substituted temporarily.

DESIGNS BY WILLIAM MUSCHENHEIM NEW YORK

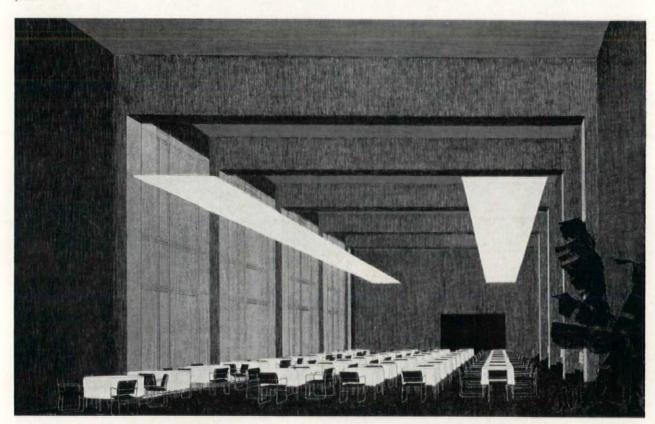


APARTMENT HOTEL NEW YORK CITY

J. Scherb



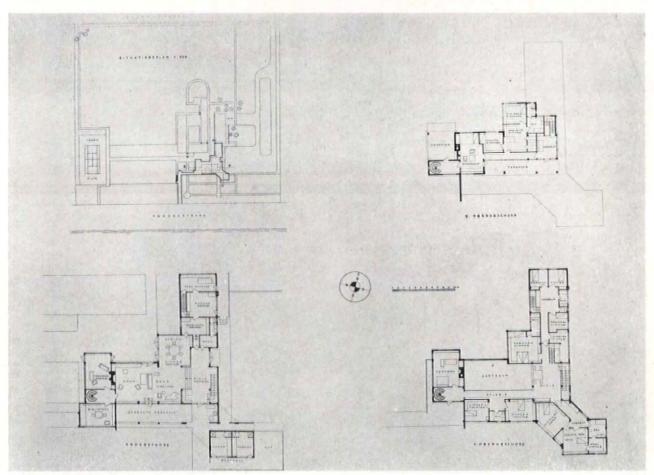
J. Scherb



APARTMENT HOTEL, NEW YORK CITY WILLIAM MUSCHENHEIM, ARCHITECT ISOMETRIC VIEW AND DINING ROOM

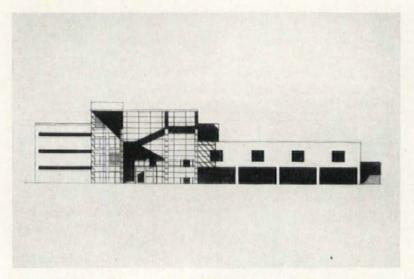


Nyholm and Lincoln

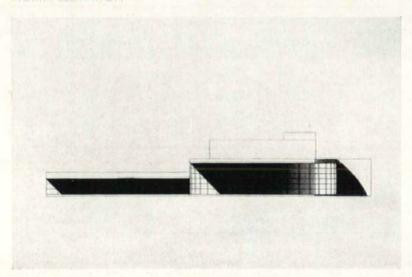


SUMMER RESIDENCE AT THE DUNES LONG ISLAND, N.Y. WILLIAM MUSCHENHEIM, ARCHITECT

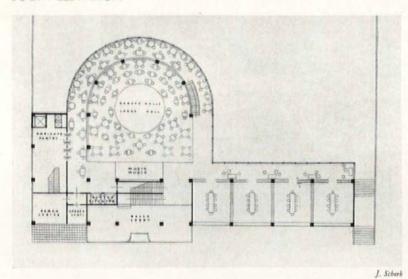
J. Scherb



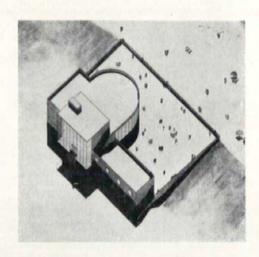
NORTH ELEVATION



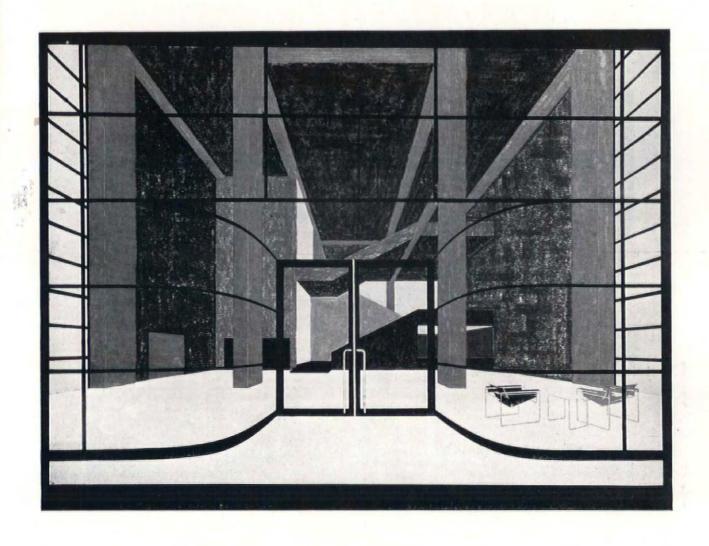
SOUTH ELEVATION



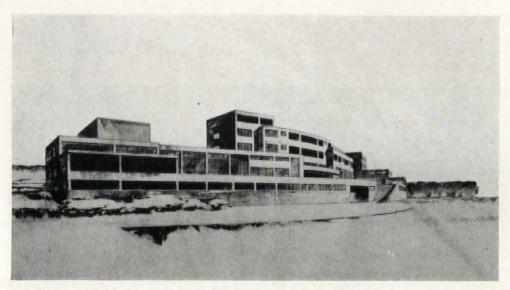
MAIN FLOOR



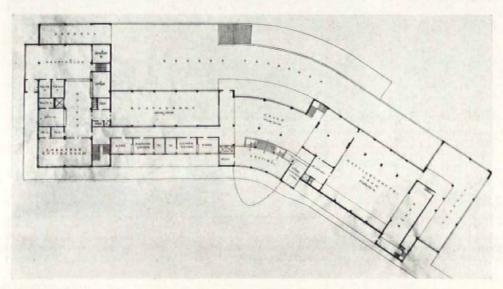
DANCE PAVILION AT THE SEA LONG ISLAND, N.Y. WILLIAM MUSCHENHEIM ARCHITECT



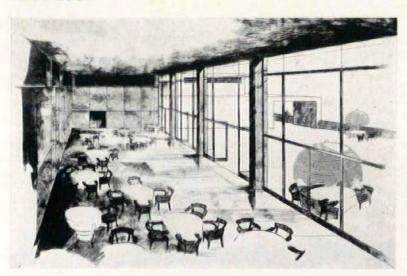
DANCE PAVILION AT THE SEA MAIN ENTRANCE WILLIAM MUSCHENHEIM, ARCHITECT



SOUTH ELEVATION



MAIN FLOOR



DINING ROOM

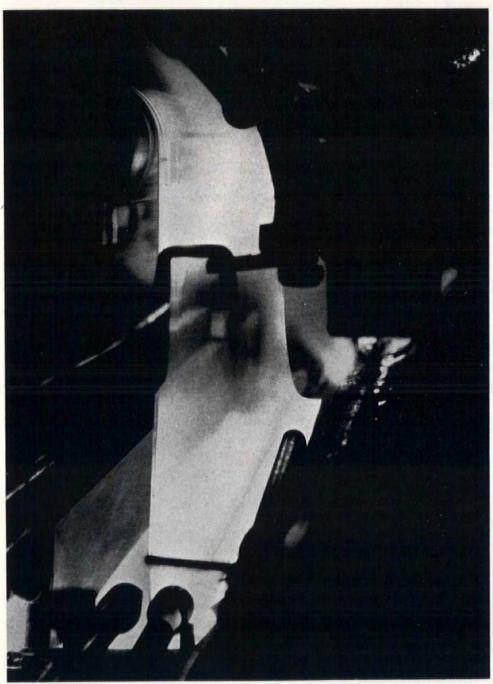
CLUB HOUSE, LONG ISLAND, N. Y. WILLIAM MUSCHENHEIM ARCHITECT

TECHNICAL NEWS AND RESEARCH

GLASS

ВУ

K. LÖNBERG-HOLM



Courtesy Libber-Owens-Ford Grass Co.

MANUFACTURE OF SHEET GLASS



MODEL FOR OFFICE BUILDING, MIES VAN DER ROHE, ARCHITECT

PHYSICAL PROPERTIES OF GLASS

PERMEABILITY TO VISIBLE RADIATION

VOLUME OF TRANSMISSION

The volume of transmission varies with the following factors:

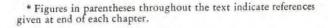
I. Chemical properties of the glass

The volume of light transmitted by glass is in direct proportion to the purity of its composition. No ordinary glass can transmit more than about 91% of the incident light. When a light ray strikes a plate glass vertically about 4% is reflected from its upper surface and about 3 or 4% from its lower surface; the remaining light being transmitted and absorbed. The amount of reflected light varies with the optical property of the glass known as the refractive index (the number which expresses the ratio of the sine of the angle of incidence to the sine of the angle of refraction) but this variation is a minor factor in the consideration of ordinary clear glasses, because of the small range of the refractive index. (From 1.45 to 1.96.)

- 2. Nature and distribution of incident light flux.
- 3. Shape and reflection factor of the background or enclosure around the lightsource.

4. Angle of incidence.

The percentage of light reflected increases with the angle of incidence (the angle between the light ray and a line perpendicular to the surface). (Fig. 1.) The percentage of light reflected increases very gradually up to about 45 degrees incidence. It then increases rapidly, becoming 100% at 90 degrees incidence. This is a very considerably loss in daylighting equipment as the transmission factor of even plain glass is less for light reaching it from many angles than for a perpendicular beam of light. Laboratory tests (1)* on daylight in relation to windows showed that filling a window opening with clear plate glass resulted in lowering the minimum illumination at the rear of the room by 42%, and it was concluded that this possibly was due to the amount of artificial skylight reflected back from the



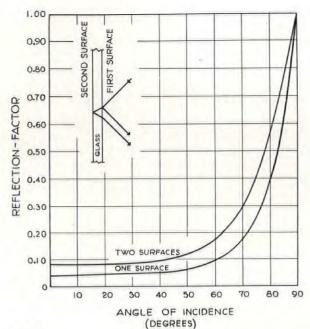


FIG. 1
PERCENTAGE OF INCIDENT LIGHT REFLECTED BY ONE AND TWO
SURFACES OF CLEAR PLANE GLASS FOR VARIOUS ANGLES OF
INCIDENCE (2).

5. Facial characteristics

Inasmuch as the transmission factor of a glass which is rough on one side (sandblasted, pebbled, ribbed or modelled) is appreciably less when the smooth side is toward the lightsource than when the rough side is, the transmission factor is given for both conditions in Table 1. Other considerations being equal these glasses should be used with their rough side toward the lightsource.

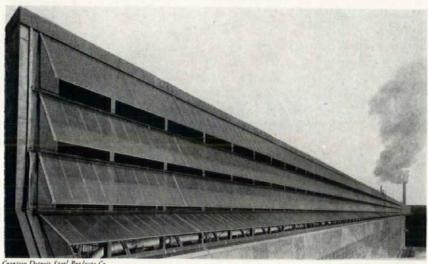
	Side Toward Lightsource	Transmission Factor		
Specimen of Glass		Perpendicular Beam	Hemispherical Illumination	
Plane Sandblasted Sandblasted Pebbled. Pebbled. Coarse Ribbed Fine Ribbed Fine Ribbed Wavy Wavy	Smooth Rough Smooth Rough Smooth Rough	0.90 .78 .74 .85 .79 .77 .52 .86 .79 .88 .88	0.80 .70 .70 .75 .75 .62 .62 .79 .82 .82	

Table 1.

Transmission factors of typical glasses for direct and diffused light. (2).



MONITOR, FORD MOTOR CO. DEARBORN



MONITOR, FORD MOTOR CO. DEARBORN



Courtesy Detroit Steel Products Co.

MONITORS, LINK BELT CO. PHILADELPHIA

	Light Reflected			Light Transmitted			
Material	In Concentrated Beam	In Spread Beam	Diffused in all Directions	In Concentrated Beam	In Spread Beam	Diffused in all Directions	Light Absorbed
Crystal Glass				0 0			5-10
Clear	8-10*		*****	80-85		*****	5-10
Frosted or Pebbled (A)	4-5	5-10	****	1.1.1.1.1	70-85	*****	5-15
Frosted or Pebbled (B) White Glass	*****	8-12	*****	*****	72-87	*****	5-15
Very Light Density (A)	4-5*		10-20	5-20		50-55	8-12
Very Light Density (B)		3- 4	10-20		5-20	50-55	10-15
Heavy Density			40-70		*****	10-45	10-20
Mirrored Glass	82-88		4- /-			*****	12-18

(A) Smooth side toward lightsource.

(B) Roughed on side toward lightsource.

* For angles up to 45 deg.; for angles greater than 45 deg. this value rises considerably.

Table 2.

Characteristics of materials.

(Courtesy: National Lamp Works, Nela Park, Cleveland).

6. Surface dirt

Dirt accumulations reduce the volume of light available for distribution. Measurements of intensities of illumination before and after cleaning the glass area in many cases show an increase as much as 5 to 10 times, and it is not uncommon to increase the illumination intensity in some parts of the interior from an average of one foot-candle with dirty glass to as high as 15 foot-candles (2).

FACTORS INVOLVED IN THE ACCUMULATION OF DIRT ON WINDOW GLASS

(a) Atmospheric conditions

Particularly in factory districts glass rapidly accumulates a film of dirt.

(b) Time and place of exposure

Investigations of dirt as related to daylighting in industrial buildings (3) have shown that the accumulation of dirt on a window over a given length of time is about 75% on the inside and 25% on the outside. Probably this is due to occasional rains which wash off some of the outside dirt. This point is particularly significant with relation to sloping windows or skylights, which are more difficult to wash on the inside than vertical windows.

(c) Angle at which the glass is placed

Sloping surfaces collect dirt more rapidly than vertical surfaces and these are therefore more efficient light-transmitting media over a period of time.

(d) Facial characteristics

The facial characteristics of the glass seem to have very little to do with the amount of dirt collected. While it was found (3) that various types of glass collected dirt in about the same quantities, some of them retained it more tenaciously when cleaning

was attempted. In selecting a window glass this point should be carefully considered as the cleaning methods and perhaps the actual cost may depend upon the ease with which the accumulated grime may be removed.

Four types of glass are commonly used in industrial buildings (3):

- 1. Clear Sheet-transmission factor 82% when clean;
- 2. Vertically Ribbed—transmission factor 72% when clean;
- 3. Horizontally Ribbed—transmission factor 72% when clean;
- 4. Rough or Hammered Wire—transmission factor 78% when clean.

(In all cases it is assumed that the light is unobstructed and diffused.)

The report (3) concludes that with the collection of six months' dirt there is little advantage in any of these glasses over any other. Clear glass and rough or hammered glass are much easier to clean, however, than either vertically or horizontally ribbed glass. Under certain conditions, it is possible to

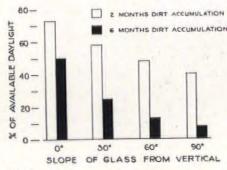
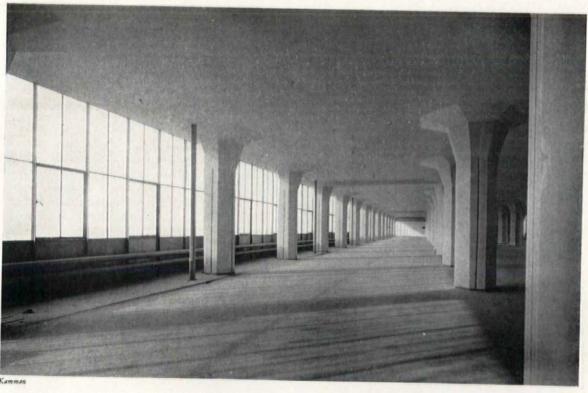


FIG. 2
RELATION OF DIRT ACCUMULATION TO SLOPE OF GLASS (3).



MONITOR, HALL PRINTING CO., CHICAGO



VAN NELLE TOBACCO FACTORY, ROTTERDAM

J. A. BRINKMAN AND L. C. VAN DER VLUGT, ARCHITECTS

increase the minimum daylighting by using rough glass with the rough side in, this being especially true where the windows are somewhat obstructed on the outside by adjacent buildings. On the other hand, for practical purposes the rough side should be out since it is desirable to wash the inside oftener and the smooth glass is easier to wash than the rough.

If the windows are to be washed once a year only, as is the case in some industries, this should not be "spring-cleaning" but should take place in the fall so that the glass may be as efficient as possible when

the need is greatest.

All daylighting values for industrial buildings should be figured on the basis of six months' dirt accumulation. (3)

CONTROL OF THE LIGHT FLUX

REFRACTION

When a beam of light enters glass obliquely from air the direction of its path is abruptly changed. The amount of this refraction depends upon the ratio of the velocities of the light as it passes through the two media. Advantage is taken of this property of glass to alter and to control the course of light rays. It is also possible to reflect all the light by means of glass prisms as shown in Fig. 3. After a ray of light enters glass it is totally reflected at a bounding plane if it is incident upon this plane at a sufficiently large angle. Prisms and lenses have an extensive use in lighting equipment, in refracting and breaking up light. Many designs of glass having prismatic forms are on the market. When properly designed and installed an appreciable control of natural light entering interiors is obtained. These glasses are usually employed for the purpose of gathering oblique light from the sky and sending it in a general horizontal direction into the parts of the room at some distance from the lightsource. Unless kept quite clean prismatic glass loses its value.

DIFFUSION

Diffusion (multiple refraction) of the light flux without glare can be obtained by:

(a) Varying the chemical composition of the glass Highly diffusing glass such as opal, opalescent or "milk" glass diffuses about as much light outward as it does inward. (Fig. 4, 5.) If it is perfectly diffusing it reflects more light outward. If one holds a piece of this highly diffusing glass in the path of light rays, it is readily seen that the glass is fully as bright when viewed in the direction of the light rays as when viewed in a direction toward the lightsource. This means that about as much light is diffusely reflected outward (toward the lightsource) as is

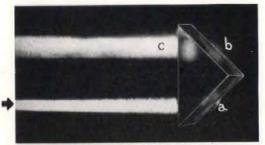


FIG. 3. TOTAL REFLECTION BY PRISM

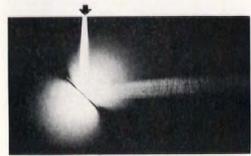


FIG. 4. REFLECTION AND TRANSMISSION BY WHITE OR MILK GLASS

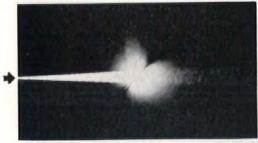


FIG. 5. TRANSMISSION AND REFLECTION OF WHITE GLASS. VERY LIGHT SAMPLE

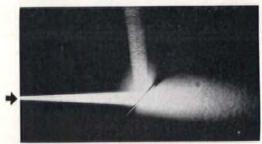


FIG. 6. REFLECTION AND TRANSMISSION BY ETCHED GLASS. SMOOTH SIDE TOWARD BEAM

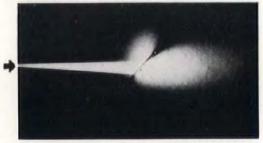
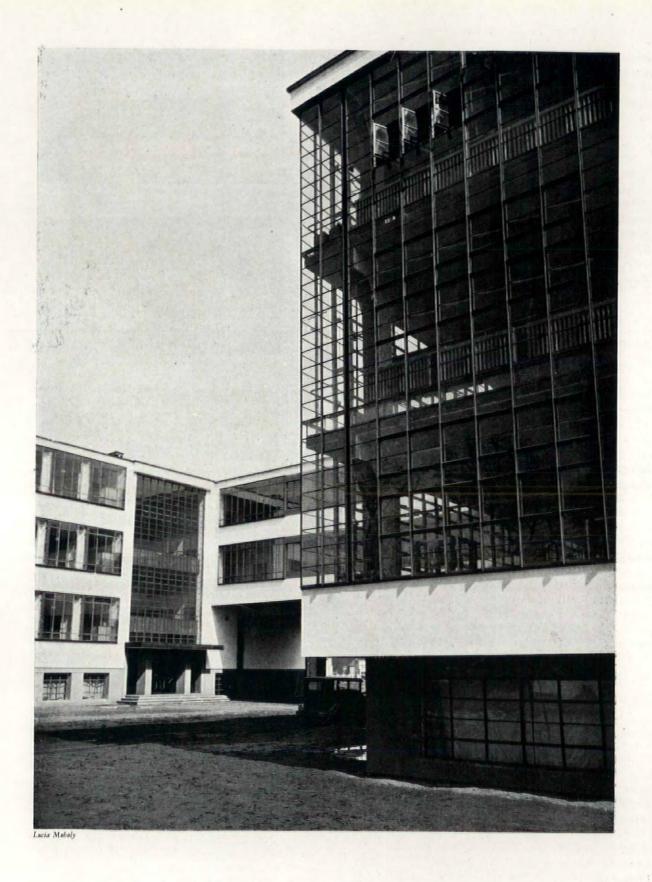


FIG. 7. REFLECTION AND TRANSMISSION; BY ETCHED GLASS. FROSTED SIDE TOWARD BEAM

Courtesy National Lamp Works, Nela Park, Cleveland



BAUHAUS SCHOOL, DESSAU, WORKSHOPS, WALTER GROPIUS, ARCHITECT

diffusely transmitted inward. This is true to some extent, but not to the same degree, of sand-blasted or so-called "frosted" glass. (Fig. 6, 7.)

Type	Thick- ness In.	Diffu- sion	% Reflec- tion	7/0 Trans- mission	% Absorp- tion		
Frosted Clear Ornamental Opalescent Solid Opal Flashed Opal	071130 118177 071098 051157	ar	ted Clear .071130 Little Imental118177 Little lescent071098 Little d Opal051157 Good hed Opal .071122 Good	Little Little Little Good Good	6-8 6-19 6-20 13-28 52-74 29-52 45-67	90-91 60-91 70-91 59-84 10-38 36-66 17-36	2- 4 3-14 3-14 3-13 6-24 3-10 14-33

Table 3.

Diffusion, reflection, transmission and absorption factors for various glass. (4).

A loss of energy is connected with this diffusion. This light absorption is a function of the thickness and the chemical composition of the glass.

(b) Surface patterns

A moulded surface scatters the light flux. The chief functions of a surface pattern are to break up the direct rays from the lightsource and to redirect the light passed through.

Diffusion for the purpose of obstructing vision can be obtained by the use of rough, hammered or pebbled glass that spreads the light in an irregular manner.

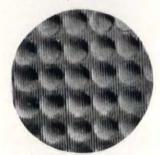
A great number of glasses are on the market with surface patterns designed for the highest transmission of light, for diffusion that reduces glare to a minimum and obstructs vision, and for controlled deflection.

The volume of transmission depends to a certain degree on the character of the flat surface of these glasses. A rolled surface is more or less rough. For full efficiency it should be ground and polished. The surface patterns should be shallow without grooves and sharp angles, for ease of cleaning. Ribbed glass spreads the light in a direction perpendicular to the ribs. Glasses with prismatic patterns or patterns composed of convex lenses spread the light equally in all directions.

Laboratory tests on transmission of light through window glass (5) have proven the possibility of increasing the illumination on a horizontal plane in the back of a room by employing horizontally ribbed glasses. But it is generally found objectionable to face windows glazed in this manner as the contrast between the window and the surroundings is too extreme, especially where these windows face direct sunlight. By employing a glass which will completely break up the direct rays of the sun, the illumination, though of a lower intensity, may be more efficiently utilized.



Manufacturer's Glass Co., Chicare



Manufacturer's Glass Co., Chicago



Mississippi Glass Co.

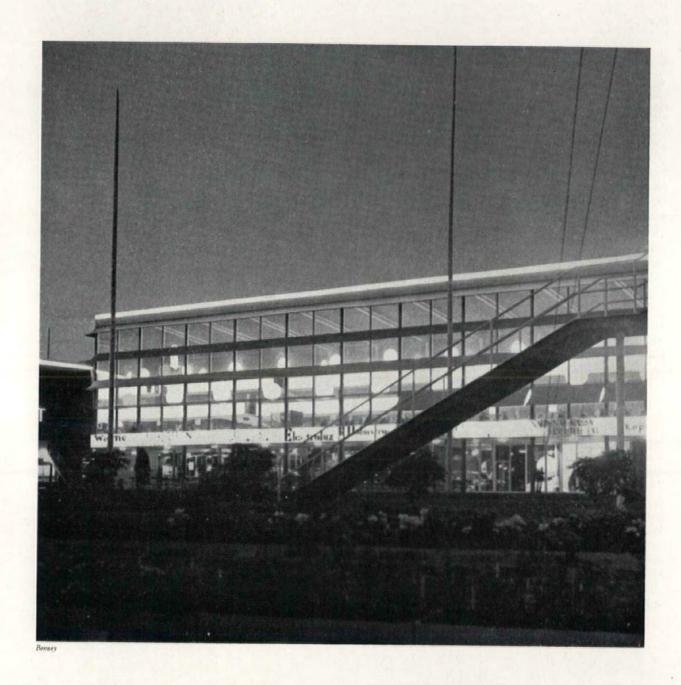


Mississippi Glass Co.



Mississippi Glass Co.

SURFACE PATTERNS FOR DIFFUSION AND CONTROLLED DEFLECTION



RESTAURANT, STOCKHOLM EXPOSITION, E. C. ASPLUND, ARCHITECT

The authors conclude that the large number of variations which are encountered in natural lighting problems must all be taken into consideration when selecting the glass which will give the best average results, and that upon the whole, glass of the type with a surface pattern that gives a uniform diffusion of sunlight appears to be most satisfactory throughout.

MIRRORS

Similar to the reflection characteristics of polished metal are those of mirrored glass. Figs. 8 and 9 show the path of a ray of light striking the surface of a commercial type of mirror with silvering on the back of the glass. A small part of the light is at once reflected by the polished surface of the glass without passing through to the silvered backing; the remainder passes through the glass to the silver, from which it is reflected through the glass again and out along a line parallel to the ray reflected from the glass surface. The fact that most of the light has to pass through the glass both to and from the reflecting surface makes the silvered mirror a less efficient reflecting surface than the polished silver itself. The loss in the glass depends, of course, on the quality of the glass. The deterioration of a polished metal reflecting surface in service is, however, a factor which often more than offsets its higher initial efficiency.

Special laminated glasses are on the market which will act as a mirror when viewed from the side of the lightsource, but will, to a certain degree, be transparent when viewed toward the lightsource. A fine metallic screen is placed between the two pieces of glass. These glasses are extensively used in speakeasies.

ABSORPTION OF LIGHT

Light absorption can be controlled by varying the chemical composition and the thickness of the glass. By coloring the glass the absorption can be limited to certain ranges of the spectrum. The transmission factor of colored glasses is to a certain extent a function of temperature.

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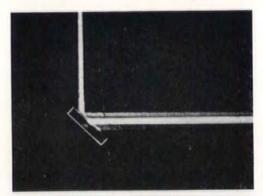


FIG. 8. REFLECTION FROM MIRROR

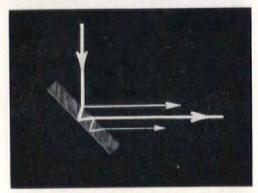


FIG. 9. DIAGRAM OF REFLECTION FROM MIRROR

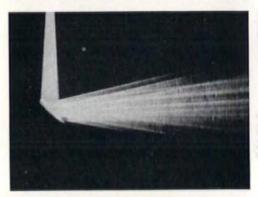


FIG. 10. REFLECTION FROM FLUTED MIRROR

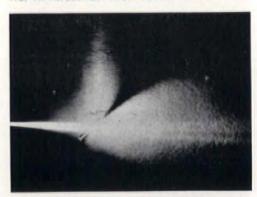


FIG. 11. REFLECTION AND REFRACTION BY FACTORY RIB GLASS

Courtesy National Lamp Works, Nela Park, Cleveland



ENTRANCE



STUDIO
PLANEIX HOUSE, PARIS, LE CORBUSIER AND P. JEANNERET, ARCHITECTS

PERMEABILITY TO SHORT WAVE LENGTH ULTRA-VIOLET RADIATION

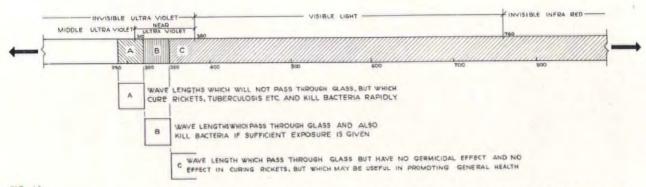


FIG. 12
DIVISION OF SOLAR RADIATION WITH INDICATIONS OF THE BANDS OF WAVES WHICH WILL PASS THROUGH ORDINARY WINDOW GLASS AND WHICH ARE OF THERAPEUTIC VALUE. WAVE LENGTHS ARE MEASURED IN MILLIMICRONS (mμ). A MILLIMICRON IS ONE-MILLIONTH OF A MILLIMETER (I).

SIGNIFICANCE

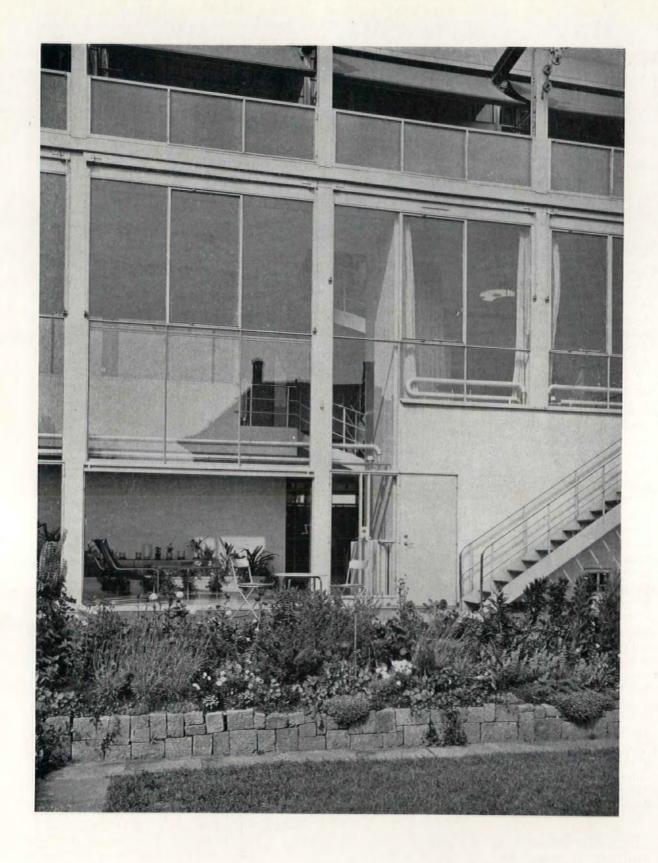
In general any material body or fluid is not transparent to radiant energy of all wave lengths. Ordinary clear glass is quite transparent to visible radiation or light but is opaque to ultra-violet radiation of the "middle" ultra-violet region (Fig. 12). The exact value of the amount of ultra-violet shut out by ordinary glass depends greatly upon the transparency of the sample of glass selected. Biologists have proven that the ultra-violet rays shut out by ordinary window glass have a special therapeutic value, especially in preventing rickets. (The rays necessary to the manufacture of vitamin D, the vitamin that controls the utilization of lime in bones, blood and tissues). Biological researches show that the strong emission line at 313 mu has only a slight or doubtful value in preventing rickets (2) and that ultra-violet rays of longer wave lengths have no antirachitic potency. Since in the wintertime in the northern latitudes the short wave length limit of solar radiation is about 305 mu, it appears that the spectral range of ultra-violet solar radiation useful for therapeutic purposes in preventing rickets is only 5 to 10 mm in width. (2). The beneficial effect depends upon the time of exposure, transmissibility of the glass and intensity of the active rays. The transmissibility of glass can be extended toward shorter wave lengths so as to include the beneficial rays. It varies as a function

(a) Chemical composition

Various kinds of glass which are permeable to ultraviolet radiation in varying degrees are now on the market. The actual percentage of transmission of this portion of the spectrum permitted by these glasses has been determined by the Bureau of Standards (2) and biologically by the Council on Physical Therapy of the American Medical Association (3). The last-mentioned report concludes that glasses are now available which satisfactorily meet the requirements of permeability to the requisite ultraviolet radiation together with protection against the weather. The question of decrease (see below under SOLARIZATION) in this transmission of ultra-violet radiation suffered by these glasses upon exposure to light had not been brought up at the time of this report by the Council on Physical Therapy. Since then it has been investigated by the Bureau of Standards. (2.)

The Bureau of Standards (2) calls attention to the necessary correlation between the biological data and the physical measurements. The question of QUALITY of light, the proper combination of ultra-violet, visible and infra-red, enters into the efficiency of these special glasses.

The report by the Bureau of Standards (2) mentions a tendency among some distributors of these ultraviolet transmitting glasses to include 320 mm or even longer wave lengths of the ultraviolet in the spectral range of therapeutic activity and that the inclusion of these wave lengths leads to an incorrect appraisal, as it gives a higher average transmission than seems warranted, when it is recognized that the greatest therapeutic activity occurs in the 302 mµ range of wave lengths shut out by ordinary window glass. Furthermore, since different samples of common window glass transmit from 2 to 20% at 320 mu there is no special reason for including this wave length in the specification of these ultra-violet transmitting glasses. The report concludes that if the rays at 320 mu have a



HOUSE VAN DER LEEUW, ROTTERDAM, BRINKMAN AND VAN DER VLUGT, ARCHITECTS

special healing value there would be no need of using special ultra-violet transmitting glass instead of selecting the least greenish (as viewed edgewise) samples of common window glass, which would serve the purpose as well, at a considerable saving in cost.

The necessity of keeping the ultra-violet transmitting glasses clean is indicated by the observations that dirt and dust can reduce the transmission at 302 m μ by 30 to 40 per cent. (2.)

(b) Thickness

The Bureau of Standards (2) gives the following data on heavy wired glass which is of importance for safety in the case of breakage when used on a sloping roof. From calculations on samples of glass which for a thickness of 2.3 mm. transmits 20 to 30%, and from direct observations, it was found that thick (6 mm., one-fourth inch wired) samples of this type of glass transmit only 3 to 5% at 302 mμ. It is shown that this transmission is too low for biological use. Hence, if thick samples must be used for safety, it is concluded that it is necessary to use material that has little or no absorption at 302 millimicrons. Otherwise it will be necessary to use single thickness (2.3 mm.) glass backed with a 1-cm. wire mesh, which shuts out about 10% of the total light.

REFLECTION AND REFRACTION

The reflecting power of these glasses is no higher than that of ordinary glass. All these glasses decrease rapidly in transmission for wave lengths shorter than 365 mµ with increasing thickness. When the thickness is increased to ¼ inch or thicker the transmission is greatly reduced. For thick prisms the transmission would be much lower. Silver has a low reflection (4%) at 320 mµ and hence, unless a better metal can be found, these special window glasses cannot be used for mirrors.

SOLARIZATION

Solarization is the designation of the photochemical reaction that most of these special glasses undergo on exposure to sunlight. A decrease in transmission of ultra-violet radiation occurs as the result of exposure to ultra-violet radiation from artificial sources and from the sun.

The solarization is essentially a problem in photochemistry, which is a function of:

(a) Time of exposure

The rate of solarization decreases rapidly with the time of exposure so that although the drop in transmission during the first day may seem alarming, it is much less during the second day and so on. It is to be noted that as a result of solarization the transmission decreases to a permanent value (2). The time of solarization, the exposure necessary before the glass reaches its permanent transmissibility value, varies with the different glasses. No doubt the time will come when new glasses which will not change in transmission will be on the market. In the meantime it will be necessary to take into consideration possible changes in the short wave length ultra-violet transmission.

(b) Temperature

The Bureau of Standards calls attention to the fact that these glasses can be rejuvenated by heating (2). The photochemical action produced by the ultraviolet rays can be reversed by heat treatment. The rate of recovery depends upon the temperature to which the glass is heated. These facts are considered as evidence in support of the view that solarization is not a destructive process, but is merely a photochemical change that can be driven in either direction, depending on the quality of the activating rays.

(c) Absorptive properties of the material for ultra-violet radiation

The Bureau of Standards' report (2) concludes that it is to be expected that the solarization will continue as long as any of the chemically active material remains uncombined, this being evident from the fact that after the glass has practically ceased to decrease in transmission, because the activating rays cannot penetrate the entire layer of glass, the solarization is renewed on turning the under (previously unexposed) side of the glass toward the source of radiation.

(d) Source of radiation

The sources used by the Bureau of Standards (2) in studying solarization were the sun, which does not contain appreciable radiation of wave lengths less than about 295 mµ, the carbon arc (without and with a glass chimney opaque to wave lengths less than 310 mm) which has a fairly continuous spectrum of ultra-violet radiation, and the mercury arc in which the ultra-violet radiation is confined principally to a number of strong emission bands at 254 to 365 mu. All of these sources lower the transmission of these glasses, the unfiltered radiation from the artificial sources apparently causing a somewhat greater decrease in transmission than sunlight. The Bureau of Standards suggests (2) that this may be owing to the fact that some of these window glasses solarize but slowly, and may not have attained minimum transmission in the time (one year) allotted for the test. It is concluded however, that whether we solarize these glasses



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APARTMENT HOUSE, BASEL ARTARIA AND SCHMIDT, **ARCHITECTS**



APARTMENT HOUSE, FRANKFURT HERMKES, ARCHITECT

by exposure to the sun or obtain the photochemical stabilization by exposure to an artificial source of radiation (the mercury arc) containing ultra-violet wave lengths not present in sunlight, the same relative transmissions are obtained. It was found that the transmission decreased to a constant value which for some glasses is only about one-half the transmission when new. In conclusion it is stated that owing to the slowness of some glasses in coming to photochemical equilibrium on exposure to the sun, it will require several years to determine whether the accelerated test with artificial source of radiation is too severe, but that the outstanding difference in the transmission between the samples of glass subjected to the accelerated test and the duplicate samples of glass which were exposed to the sun is too small to take into consideration, and that, moreover, all the various makes of glass are comparable on the same basis whether by accelerated aging with the mercury arc and the carbon arc or by solarization by exposure to sunlight when the latter is sufficiently prolonged. A "correction factor" is used in determining the minimum transmission for sunlight on the basis of the accelerated tests. Attention is called to the rapid improvement in these new glasses.

BIOLOGICAL VALUE

The antirachitic value of these glasses is a function of:

- (a) The transmissibility of the glass.
- (b) A source or locality (in the case of sunlight) having sufficient ultra-violet to prevent rickets.

In the case of sunlight the minimum transmission permissible will depend upon the altitude and latitude of the given location. Evidently the most transparent glass available will be required in the northern latitudes, where the activating rays are of low intensity, while in locations where sunlight is abundant a glass having a lower transmission factor may prove satisfactory. This conclusion is based upon the report issued by the Council on Physical Therapy of the American Medical Association (3), which shows that only those glasses which had a transmission of 30%, or higher, at 302 mµ gave an appreciable protection against rickets, but that this protection was not 100%.

Reports on the antirachitic efficiency of solar radiation in northern latitudes through various samples of ultra-violet transmitting glasses (4, 5, 6, 7) show that in order to obtain a useful antirachitic effect from sky shine (that is, solar radiation from the sky and clouds) approximately equal to that of the direct rays of the sun, it is necessary to construct a solarium glazed with special glass permeable to ultra-violet radiation and which will admit rays from a large part of the sky; and furthermore (8) that in order

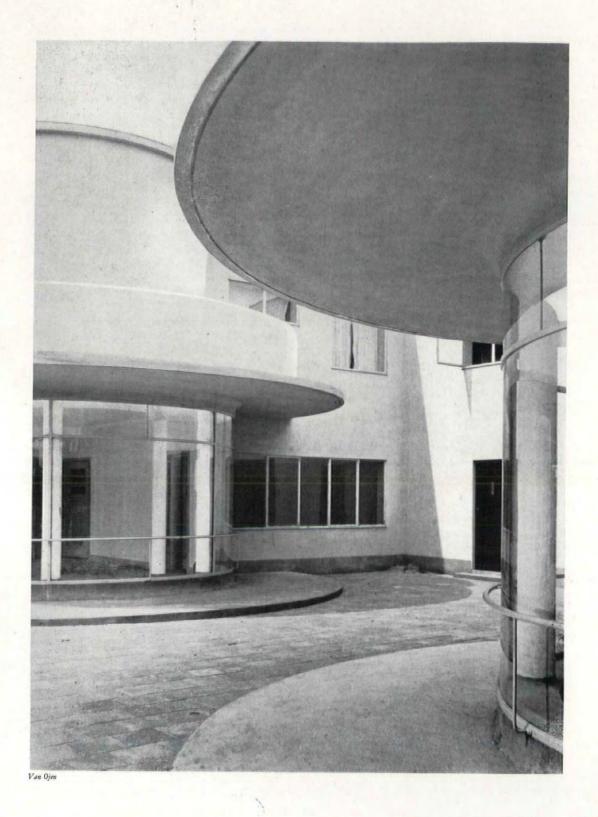
to prevent rickets, the animals under test had to be kept directly in the path of the sun's rays if an ordinary window opening glazed with this special glass was used. Those animals that were 1 m. or more from the window, or close to the window, but outside of the path of the sun's rays developed rickets.

The Bureau of Standards report (2) concludes that all evidence available at present indicates that a solarium glazed with special window glass or windows exposed to the direct sunlight are necessary in order to obtain beneficial results in preventing rickets and presumably for general therapeutic purposes, and because of the variability of sunlight, calls the attention to the use of artificial sources, especially the carbon arc and the quartz mercury arc lamp. However, since the shortest ultra-violet rays emitted by these artificial sources of radiation appear to be unsuitable for the activation of foods, etc., it is considered desirable in such cases to cover the arc with a screen which transmits only wave lengths longer than 290 millimicrons; that is to say, the wave lengths which occur in sunlight.

It is evident that further biological research work is needed.

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STORE FRONTS, HOEK VAN HOLLAND, J. J. P. OUD, ARCHITECT

PERMEABILITY TO HEAT

THERMAL CONDUCTIVITY OF MATERIALS

	K
Gibder concrete	2 to 3
Building gypsum	About 3
Plaster	2 to 5
Building brick	3 to 6
Glass	5 to 6
Limestone	4 to 9
Concrete	6 to 9
Sandstone	8 to 16
Marble	14 to 20
Granite	13 to 28

Table 4 (1)

K—Thermal conductivity in Btu. per hour, sq. foot, and temperature gradient of 1 deg. F. per inch thickness. The lower the conductivity, the greater the insulating values.

HEAT TRANSMISSION

The thermal conductivity can be varied with structure and density in the ratio of two to one, the figures running about 0.1% that of silver, 0.3% that of copper, and 1% to 2% that of iron. Although the conductivity of glass is so far below that of the metals, surface conditions are such that heat transfer through a copper condenser is only two and onehalf times that through a condenser of Pyrex glass (a special borosilicate glass). In specific heat ordinary glass is near aluminum and about twice iron or copper. The low power of reflecting radiated heat is used with advantage in the construction of baking dishes of special borosilicate glass. The high reflecting power of metal slows down the heating of its content to an extent not compensated by its thinness and high conductivity. Although heating takes place more rapidly, yet cooling takes place more slowly in glass than in metal. Glass conducts heat about one hundredth as fast as metal and the greater thickness of the glass dish also impedes

The insulating value of glass depends upon its thickness as well as upon the thermal conductivity. In general the insulating value, that is the resistance to the heat flow, is equal to the thickness of a material divided by its thermal conductivity, i.e. the reciprocal of the conductance. For thick walls built of insulating materials the rate of heat transmission will be governed mainly by the absolute conductivity of the material itself, the surface finish being of relatively little importance; but for thin walls built of conducting materials the rate of heat

transmission will be governed mainly by the surface transfer. Increase in absolute conductivity, reduction in thickness, or acceleration of the outer surface transfer of heat tends to lower the inside surface temperature of the wall.

THERMAL EXPANSIVITY

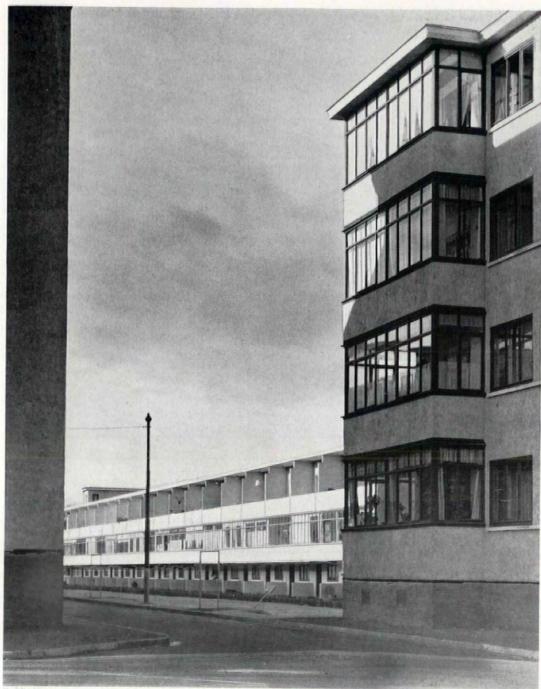
The change in volume caused by heating or cooling glass is very small, but important in the use of glass for structural purposes. The thermal expansivity can be made to vary in as high a ratio as six to one. Commercial glasses have linear expansivity ranging from three millionths to eleven millionths, these fractions representing the extent to which the length increases or decreases on heating or cooling one degree centigrade. Where ordinary lime glass expands 10 millionths, copper expands 17, iron 12, and platinum 9, this being also the figure for certain lead glasses which are readily sealed to platinum. For special borosilicate glasses (Pyrex glasses) the value is around three. Quartz glass, which is amorphous silica, has a linear expansivity of less than one millionth and can be heated and plunged into cold water without breaking.

HEAT ABSORPTION

Recent experiments with new glass compositions (2) have demonstrated the possibility of making a heat absorbing glass of low thermal expansion capable of withstanding a considerable heat shock. This heat-resisting, heat-absorbing glass, has been employed in projection apparatus to remove the invisible heat radiation. It is sold under the trade mark AKLO (Corning Glass Works, Corning, N. Y.). The desired heat transmission or light transmission, as the case may be, can be secured with a thin piece of a dense glass or a thick piece of a dilute glass. The latter has in general a better light transmission for a given heat transmission than does a thinner piece of a denser glass.

INSULATING VALUE

The heat transfer through a single window is usually more than twice that of a double window (3). Vacuum panes now being developed in Europe and structural units of vacuum type (up to 90% vacuum) possess the insulating value of vacuum bottles and reduce condensation. Walls and windows of structural glass units eliminate infiltration.



H. Collischon

APARTMENT HOUSE, FRANKFURT, FRANZ ROECKLE, ARCHITECT

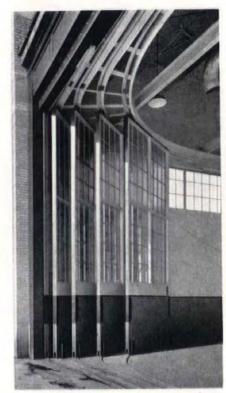
FIRE RESISTANT CONSTRUCTIONS

Steel wire netting incorporated in glass of ½" thickness and over afford fire protection (resistance to passage of flames and the cooling and impact of fire streams) by holding the glass in the sash after it has been cracked from the heat. The degree of protection furnished by a wired glass window is naturally limited to the fusing point of the glass. Fire records show, however, that under ordinary conditions where the exposure is not especially severe such windows are effective fire stops (4). One-quarter inch wired glass for fire protection must not exceed 720 sq. in. exposed area or 54" vertical and 48" horizontal dimensions to conform to the rules of the National Board of Fire Underwriters. (Class E openings.)

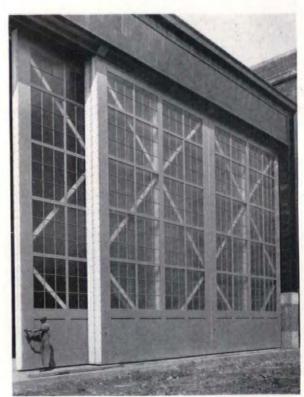
Constructions of glass prisms placed in metal frames or reinforced concrete frames with an elastic compound to allow for expansion and walls of reinforced glass blocks are effective fire stops. Fireproof glass windows, walls and partitions used in Europe ("Luxfer" Electro and "Solfac" Galvano glass) consist of 10 x 10 cm. prismatic crystal glasses fastened electrolytically in copper frames. The profile and strength of the frame depends on the type of glass used. Great areas are divided by metal or reinforced concrete frames. Expansion joints are provided when the glass is placed in the frames. These constructions can also be used for roof lights.



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Coursesy Truscon Steel Co



Courtesy Truscon Steel Co.

SLIDING STEEL HANGAR DOORS





VAN NELLE TOBACCO FACTORY, ROTTERDAM, BRINKMAN AND VAN DER VLUGT, ARCHITECTS

ACOUSTICAL PROPERTIES*

1. ABSORPTION OF SOUND

As an absorbent of sound, glass is among the lowest rated materials, due to its smooth surface. The value of its absorption is generally taken at 11/2% as compared with 3% for hard gypsum plaster on metal lath and 6% for lime plaster on wooden lath. In very large sheets it would undoubtedly vibrate as a diaphragm under the impact of sound and would have absorption values in excess of 11/2% at various frequencies, corresponding to its natural period of vibration and various harmonics thereof. Values on the sound absorption coefficient of glass vary with different authorities. The value 0.027 at 512 cycles has been secured by both W. C. Sabine and F. R. Watson. Results at other frequencies are unobtainable. The Bureau of Standards gives the following values of absorption coefficient of glass: 0.021 at 297 cycles; 0.020 at 1095 cycles; and 0.010 at 2190 cycles. The Bureau of Standards apparently accepts and uses the value of 0.027 at 512 cycles.

2. TRANSMISSION OF SOUND

Paul E. Sabine, J.A.S.A., January, 1930 (1):

"A door or window may be treated as a single structural unit, and the tests on these constructions show that the reduction factors are determined for the greater part by the weight of such units and also, but to a less degree, by their structural stiffness. Table 5 gives the averaged results for 16 different units (Editor's note: only seven units employing glass are shown). Unless otherwise indicated the units were sealed in tightly in each case so that the values are somewhat higher than would be the case in actual practice, when the sound insulation is decreased by the passage of sound through the cracks at the threshold and sides.

		Av. Reduction (db.)		
No.	Description	128 to 4096	128 to 1024	
10	Window, one pane 79"x30", 14" plate glass	23.0	22.8	
11	1/11 plate glass	25.7	25.3	
12.	Window, 2 panes each 31" x39", 36" plate glass	20.I	19.7	
13	Same as 12, but double-glazed with glass set in putty on both			
14	sides of sash, 1" separation Same as No. 13 but with glass	23.4	23.1	
. 1	set in felt	25.4	24.0	
15	Small 3/6" leaded panes	25.0	23.9	
W	glass	21.7	21.2	

Table 5. (Table 1 of P. E. Sabine).

Reduction factors for single glass panes (1).

*** Compiled for The Architectural Record by G. T. Stanton, Asst. Acoustic Engineer, Electrical Research Products, Inc., New York "Inspection of the values for the windows suggests that the crossbracing of the sash effects a slight increase in insulation over that afforded by larger unbraced areas of glass. On the whole, it may be said that normal door and window construction can not be expected to give a reduction of more than 25 db."

The above values for the average reduction factors were the averages for a number of standard test tones which included four tones in each octave below 1024 cycles per second, and two tones in each of the two octaves above this frequency, or seventeen tones in all

In addition to the above data on single thicknesses of glass, the following information on double thicknesses of glass with various air separations are also quoted from the same article by Paul E. Sabine

"This series of tests was conducted with two singlepane 1/4" plate glass window, 82" x 34" set in one of the Sound Chamber openings. Spacing frames of 1" poplar, to which 1/2" saddler's felt was cemented, were used to separate the two windows.

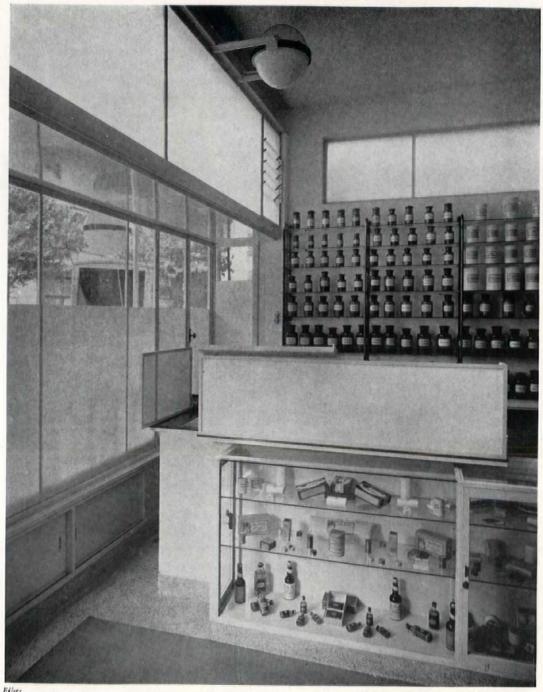
"The separation between the windows was increased by increasing the number of spacing frames. It is evident that the experiments did not show the effect of increased air space alone, since a part of the transfer of sound energy is by way of the connection at the edges. However, the results presented in Table 6 show that the spatial separation between double walls does produce a very appreciable effect in increasing sound insulation."

Description	Reduction (db)	Equiv. Masonry
Sashes in contact		1.8"
1½" separation		2.6
4½" separation	35-3	3.0
9 ¹ / ₂ " separation		4.8"
131/2" separation		5.5"
16" separation	43.0	5.8"

Table 6.

Reduction factors for double glass panes (1).

Transmission of acoustic energy by partitions of wood, glass, steel or masonry, which are impervious, must take place by means of minute vibrations of these structures set up by the alternating pressure of the incident sound. Sound, considered as undulatory motion of the air particles, cannot pass through such barriers. If the natural frequency of the partition is much lower than the frequency of the incident sound, the transmission depends chiefly on the mass of the partition. If the natural frequency is much higher than that of the incident sound, the transmission depends on the stiffness of the partition.



Eilers

DISPENSARY, J. DUIKER, ARCHITECT, HOLLAND

Quoting from F. R. Watson's "Acoustics of Buildings", 1930 (2):

"Experience has shown the following in connection

with sound reduction:

"With an average reduction factor of 25 db., normal speech can be understood quite easily and distinctly through the partition.

"With an average reduction factor of 30 db., loud speech can be understood fairly well if conditions

are quiet.

"With an average reduction factor of 35 db., loud speech is audible, but not easily intelligible under

quiet conditions.

"With an average reduction factor of 40 db., normal speech is not audible, loud speech can be faintly heard, but not easily understood, and for all practical purposes the partition can be considered as 'sound

proof'.

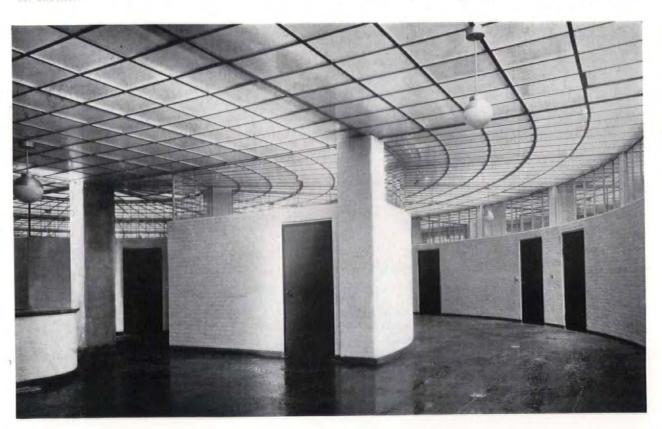
"Flexural vibrations play an important part in transmission. Dead air spaces between double windows were not as effective as commonly supposed. The air space should not be bridged over by solid materials even at the edges of the glass. Inserting sound absorber between the glass plates increased the insulation." The results obtained by the Bureau of Standards on transmission tests through glass are quite similar to those obtained by Paul A. Sabine.

No information as to the relative reduction factors of the glazing method used in the monitoring booths of the various film studios could be obtained. This method uses different thicknesses of glass with a constant spatial separation, and is said to be more satisfactory than using glass of the same thickness at the same spacing. This point would appear to be reasonable if the theory of transmission in such impervious structures is correct by providing a mismatch of the air impedance in the various sections. This condition, however, would only be true in the event of true diaphragm action of the glass windows. The presence of diaphragm action is evidenced in Table 5 of Paul E. Sabine, since with small sections of glass rigidly braced greater reduction factors were obtained.

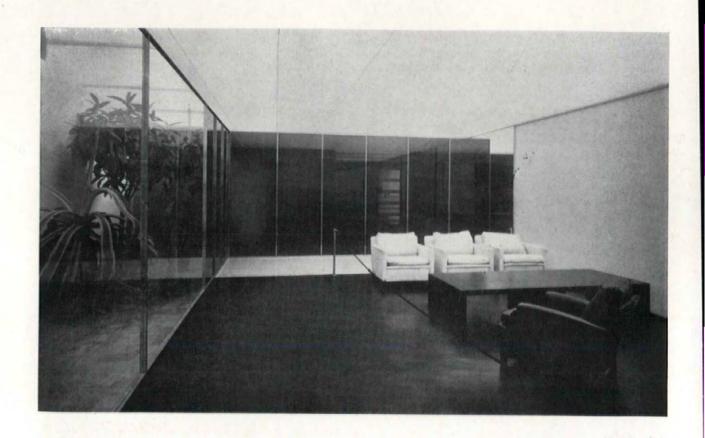
It is to be appreciated that reduction factors as indicated for double windows were not generally the obtainable in practice, since the conditions of the tests were commercially unobtainable. In this particular test, there was no connection between the windows by way of the sashes or surrounding masonry structures since two completely isolated rooms were used.

REFERENCES

- 1. Journal of the Acoustical Society of America.
- 2. Acoustics of Buildings, 1930, by F. R. Watson.



HALLWAYS, ADMINISTRATION BUILDING, DESSAU, WALTER GROPIUS, ARCHITECT



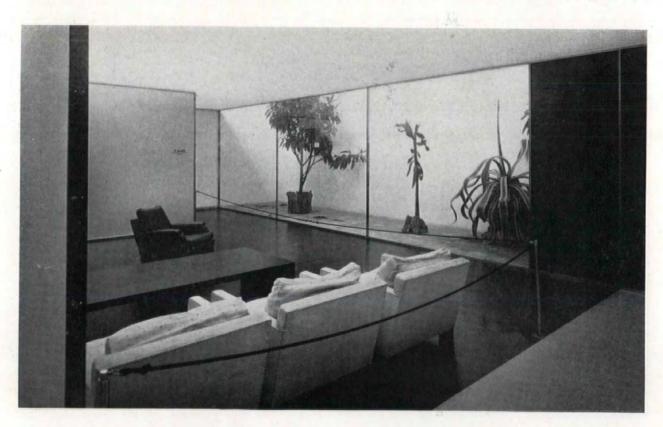
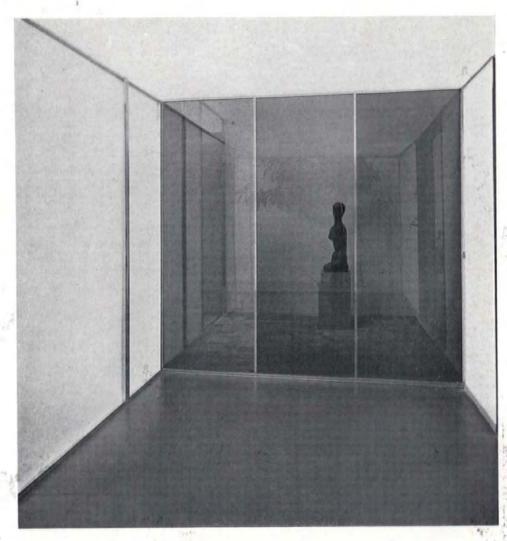


PLATE GLASS PARTITIONS, EXPOSITION STUTTGART, MIES VAN DER ROHE, ARCHITECT



MIES VAN DER ROHE, ARCHITECT

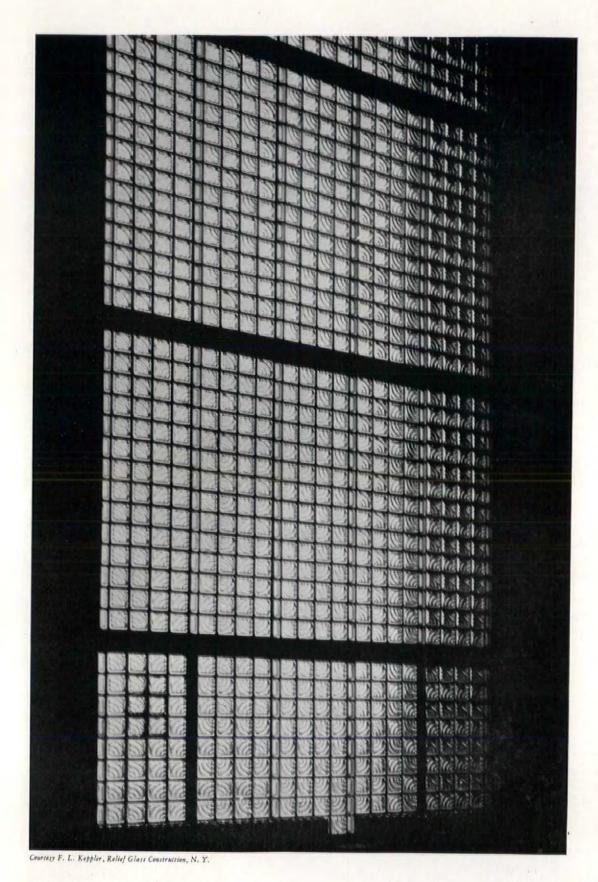
PERMEABILITY TO FLUIDS

The surface of glass is non-porous, does not crack, absorbs no odors, and is impervious to air, gases, water, grease and most acids. Glass will not warp, swell, pull apart or lose its hardness when exposed to moisture. A polished surface will not disintegrate and will retain its luster; it is difficult to mark or write on, and is particularly easy to keep clean. For these reasons clear or colored glass polished or modeled in sheets or in tiles of sufficient structural

strength can be used extensively for exterior and interior wall treatment, partitions, toilet stalls, shopfronts, floors, ceilings, mirrors, furniture, signs and lighting equipment. Glass will furthermore meet the criteria for a number of building fixtures.

REFERENCES

Glas im Bau und als Gebrauchsgegenstand, by Arthur Korn, Ernst Pollak Verlag Berlin-Charlottenburg.



PRISM WINDOW

MECHANICAL PROPERTIES

The mechanical properties depend on composition and dimensions. The specific gravity or density of ordinary lime glass, 2.5, is close to that of metallic aluminum, 2.6. It can be made to vary in a ratio of about three to one, namely from 6.33 to 2.14. The weight of ordinary glass is roughly 2 lbs. for each 1/8" of thickness.

The hardness of glass, that is, its imperviousness to scratching, can be made to vary in about a two-toone ratio, the hardest being harder than quartz.

The tensile strength of glass in laboratory measurements ordinarily is about 10.000 lbs. per sq. inch. It is possible to prepare glasses by special heat treatment, the so-called case-hardening process, of tensile strength near that of wrought iron, which is about 50.000 lbs. per sq. inch. The compression strength of glass is greater than that of ordinary structural materials such as granite, concrete or brick. Glass can be worked and shaped and polished to a brilliant surface.

The common causes for fracture are compression, tension, flexure, impact and sudden temperature differences causing internal stresses. Ordinary sheet and plate glass should not be subjected to structural strains; edges in contact with other materials should therefore be cushioned.

Fire-resistant constructions (see PERMEABILITY TO HEAT).

Wired glass

Wired glass has about 11/2 times the bending strength as glass of same thickness not wired. The wiredmesh reinforcing causes a loss in light transmission.

Corrugated glass

Corrugated glass, wired or clear, has a higher bending strength than flat glass.

Laminated safety glasses

These glasses consist of two or three thicknesses of plate or drawn sheet glass with one or two layers of a transparent pyroxylin plastic between. The layers are welded into a single piece under heat and great pressure. The adhesion between the glass and the







Courtesy American Window Glass Co.

THE LAMINATED GLASS IS CRACKED BY THE ROD AND BY THE IMPACT OF THE STEEL BALL BUT DOES NOT SCATTER





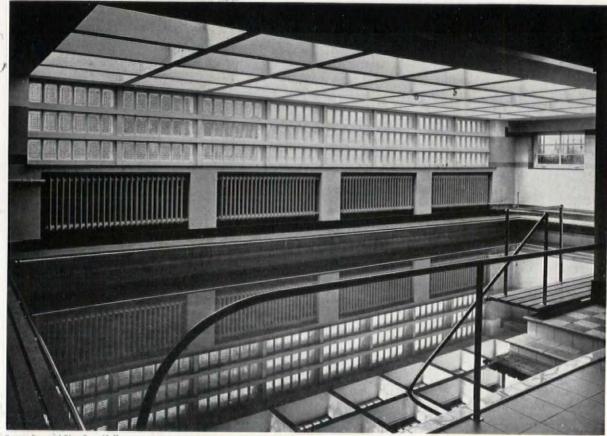




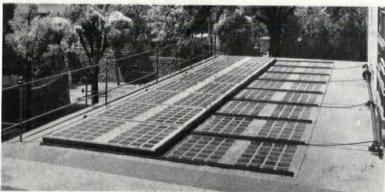


Courtesy Structural Glass Corp., New York

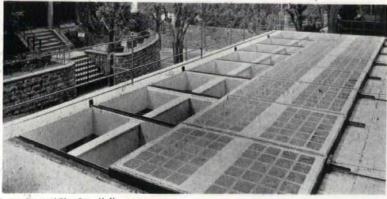




Courtesy Structural Glass Corp., N. Y



Coursesy Structural Glass Corp., N. Y.



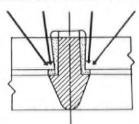
Courtesy Structural Glass Corp., N. Y.

SWIMMING POOL WITH SLIDING

plastic is so complete that the glass will not separate from the plastic when it is broken. (Fig. 13). In its finished form this glass can be cut only with special tools. Laminated glass does not impair visibility. It is manufactured in various thicknesses, from light scatter-proof glass to heavy 1" thick bullet-proof glass.

Prismatic units

The combination of glass prisms and slender reinforced concrete ribs makes the glass an integral part of the construction. All metal members are imbedded in concrete, and there is no risk of corrosion. The panels seldom exceed 35 to 40 square feet; they can be made in the plant or built on the job. Expansion joints should be provided around the panels. The design of the prisms should insure a minimum loss in light transmission (Fig. 14), a minimum strain on the flanges, and easy exchange of broken units. Ventilation units in bronze frames can be placed in these constructions. In addition to light-transmitting properties, these relatively light constructions usually are fire-proof and sound-proof. Heatinsulating value varies; air infiltration is eliminated. Maintenance cost is minimal.



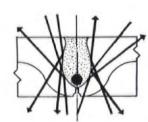


FIG. 14.

THE CONSTRUCTION AT RIGHT TRANSMITS PART OF THE LIGHT WHICH IS STOPPED BY THE METAL MUNTIN IN THE CONSTRUCTION AT LEFT.

Glass bricks

Panels of hollow, vacuum or solid glass bricks or blocks of various compositions and colors are constructed without reinforcing members. The glass is clear or wired. The bricks are laid in cementmortar with lime added for pliability. The hollow bricks should be designed to insure a minimum loss in light transmission in the hollow or through reflection. Broken units should be exchangeable. The panel sizes average the sizes given above. Reinforced blocks have high fire-resisting qualities. The cost of these panel constructions (prisms and blocks) varies with the type of glass from \$2.30 to \$3.40 per square foot installed.

REFERENCES

Glas in der Architectur der Gegenwart, by K. W. Schulze, Wissenschaftlicher Verlag Dr. Zaugg & Co., Stuttgart, 1929.

Glass Industry, published monthly by Glass Industry Publishing Co., New York.





HOLLOW BLOCK 91/4" x 41/2" x 3"



HOLLOW BLOCK 9½" x 4½" x 3"

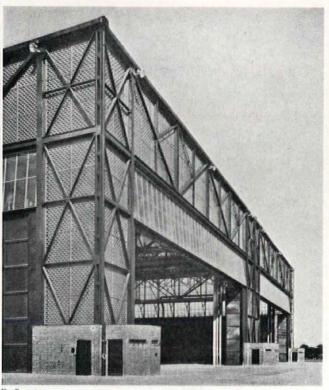


VACUUM BLOCK 9¾" x 5" x Ω½"

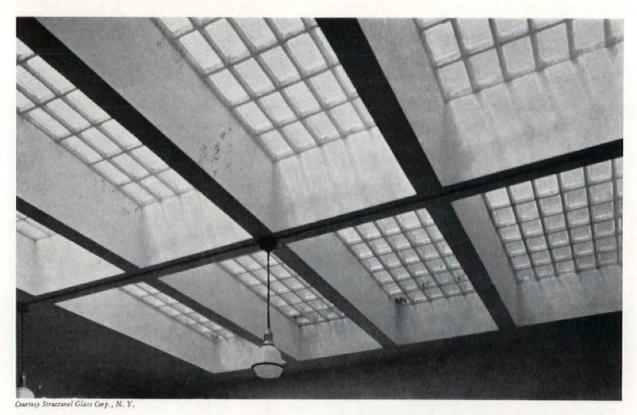


VACUUM BLOCK 734" x 51/2" x 3

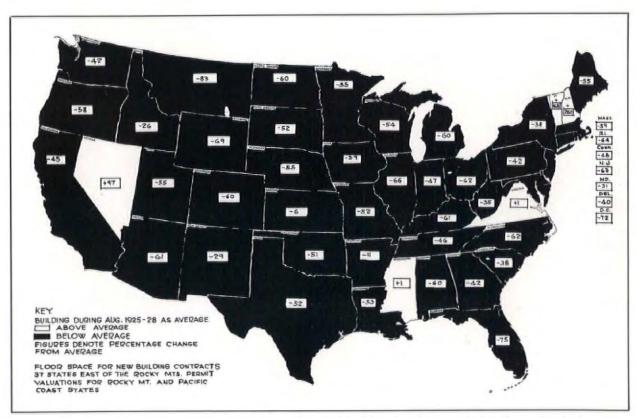
Courtesy Structural Glass Corp., N. Y.



Der Baumwister
GLASS BLOCK WALLS, AIRPLANE HANGAR,
MUNICH
K. J. MOSSNER ARCHITECT



ROOF LIGHTS



The volume of building for August, 1930, showed only five states where current new volume was greater than average (August, 1925-1928): New Hampshire, Vermont, Virginia, Mississippi and Nevada. Of these Virginia and Nevada consolidated their July gains. Other states showing gains in July failed to carry through in August.

BUILDING TRENDS AND OUTLOOK

PROSPECTS FOR NON-RESIDENTIAL CONSTRUCTION

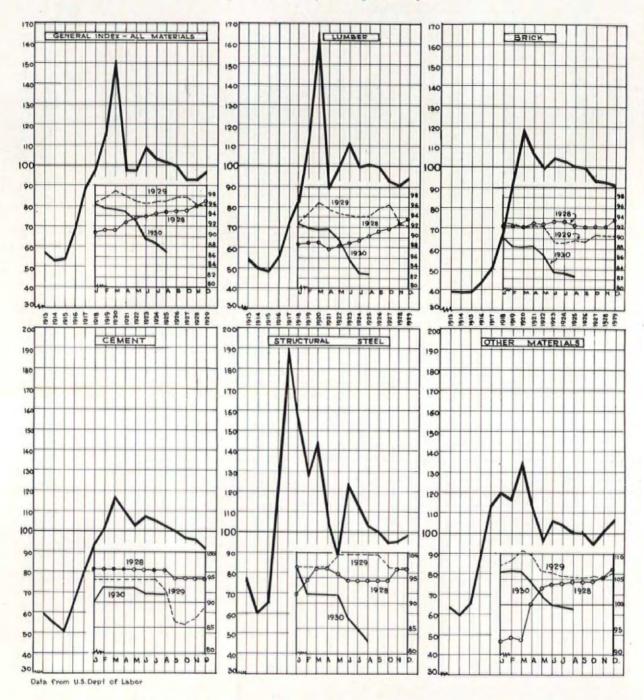
Non-residential building is normally a concomitant and not an important moving cause of large general construction activity. Nor is non-residential building a maker of business prosperity. It is rather a symptom or a result. This is especially true with respect to industrial building which usually accounts for about one-fourth of all non-residential building. In each of the four years of relatively large industrial activity since the war (1920, 1923, 1926 and 1929) this type of construction accounted for more than 25 per cent of the total, ranging from almost 42 per cent in the hectic year, 1920, down to 261/2 per cent for 1929. In the recent depression years (1921, 1924, and 1927) industrial building ranged from 191/2 per cent of the total in 1924 to only 17 per cent in 1921. It is here of large importance to note that new industrial construction has been, in the past, most often undertaken at or near the crest of large industrial activity, even in the face of our much vaunted improvement in industrial management.

To somewhat the same extent what is true for industrial building has held for commercial building, which usually accounts for more than one-third of all non-residential building. Commercial building, however, has been more readily activated by economic conditions and factors of obsolescence than has industrial building. Together these two branches of non-residential construction, for the years from 1919 through 1929, have accounted for about 60 per cent of all non-residential building; the remainder included educational buildings, hospitals and institutions, public buildings, religious and memorial, and social and recreational structures. Of these, educational buildings have been of most importance, and public buildings of least importance. New educational buildings undertaken in the last eleven years have represented 17 per cent of all non-residential building while public buildings have accounted for only about 3 per cent of the total.

(Continued on page 92, Advertising Section.)

WHOLESALE PRICES FOR BUILDING MATERIALS

(1926 monthly average=100)



The general index of building material prices continued its downward trend through August and the early weeks of September while the general commodity index showed some signs of strength, almost entirely due to higher prices for farm products and foods and largely reflective of the effects of the recent drought. Despite these opposite trends prices for building materials were still on a higher plane than general prices, a condition which has lasted for almost two years, in the face of a drastic curtailment in building. There are evidences that discounts under existing union scales in the building trades have been accepted in certain localities; while increased efficiency on the part of building tradesmen, usually manifested in times of slack employment, has operated to produce measurably lower unit construction costs.

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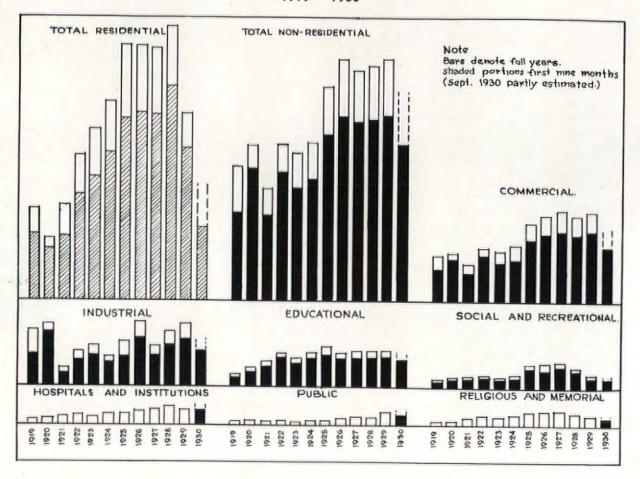
Sunlight

Name		
Street		
City	State	

NON-RESIDENTIAL BUILDING IN 27 NORTHEASTERN STATES, BY TYPES

(A Comparison with Residential Building)

1919 - 1930



(Continued from page 359, Editorial Section.)

From the record covering more than a decade it may be inferred that the construction of hospitals and institutions, religious and memorial buildings, and social and recreational buildings, which in the aggregate accounted for only 20 per cent of all nonresidential building, has moved pretty much independent of purely economic considerations. Each type seems, however, to have had a cycle of its own which may have been due to activity largely occasioned by donations of various descriptions, the receipt of which, in some measure, has depended upon good business conditions. To a lesser degree, large activity in educational building, has rested also upon contributions though here the growing needs have been largely taken care of by governmental expenditures, either through taxes or bond issues, each reflective of existing general business conditions.

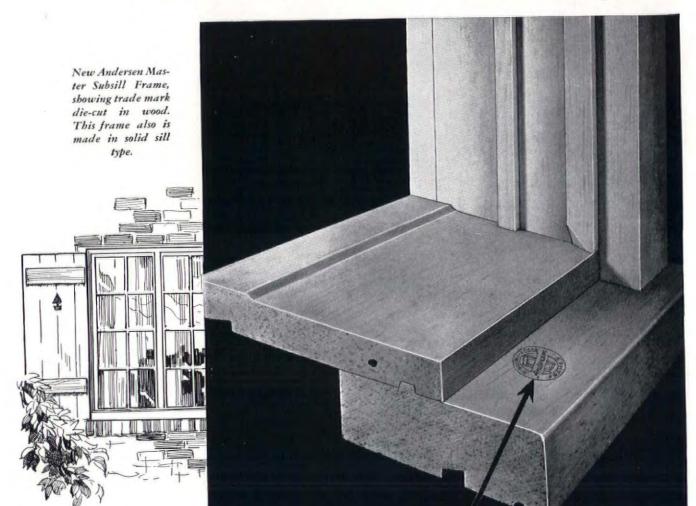
The volume of educational building undertaken in 1930 will approximate conditions of 1924; hospitals and institutions will almost surely exceed 1928, the last previous high year, the total for the first nine months practically equaling the entire year 1929; religious and memorial buildings should just about equal the 1929 total, itself lower than any previous year since 1923; while social and recreational buildings will likely fall to the 1924 level. It is of interest to note that these two latter types of building ac-

tivity showed continuous expansion throughout the years 1919 to 1927 but for unimportant setbacks in 1923; that for the peak year 1927, each was about three times as large as in 1919; and that since 1927 each has moved downwards to a point where the relative declines are now substantial. Together these two types for the years 1926 and 1927 were more important than educational building and for 1927 about as important as industrial building.

For the first nine months of 1930 industrial building, on a total non-residential volume considerably below 1929, showed a ratio to total of 25 per centan experience essentially different from that of the three recent previous depression years. That there has been no appreciable change in the relative importance of industrial construction from what has been usual in periods of large general industrial activity may have been due to the same sort of stimulation here which has influenced the construction of public works and utilities, though this latter class of construction has perhaps been faced with a more genuine current demand than has either residential or non-residential building.

In last month's review it was pointed out that no real improvement in general construction may be expected unless revival takes place in residential building. It is very likely that the current depression in residential building will not deepen since the cumula-

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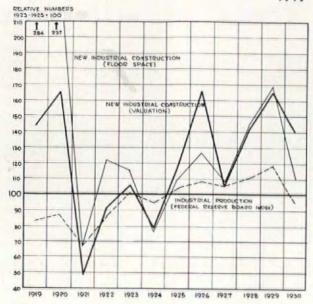
Frames

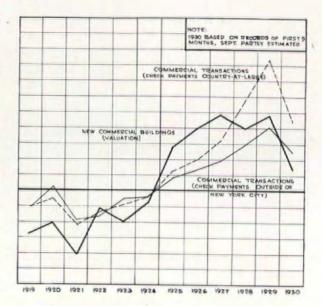
FOR WEATHERTIGHT INSTALLATIONS—USE ANDERSEN SPECIFICATIONS

INDUSTRIAL AND COMMERCIAL BUILDING IN 27 NORTHEASTERN STATES

(A Comparison with Industrial and Commercial Activity)

1919 - 1930





tive relative declines from 1929 for the last three months ended August have been virtually stationary at something under 50 per cent below last year. For non-residential building there still seems to be further recession in sight in the light of the progressive relative declines recorded in the past three months; at the end of August non-residential building was 16 per cent behind the corresponding eight-month total ended August, 1929, at the end of July the decline was 13 per cent, while at mid-year non-residential building was off only 8 per cent. It is therefore highly probable that the remaining months of 1930 may show still further accumulated declines from 1929 as the year draws to a close because the more important types, commercial and industrial, remained at relatively high levels throughout the closing months of 1929. Residential building, on the other hand, is more likely to show better comparisons with 1929 from now on because of the drastic curtailment in this branch during the closing quarter of last year.

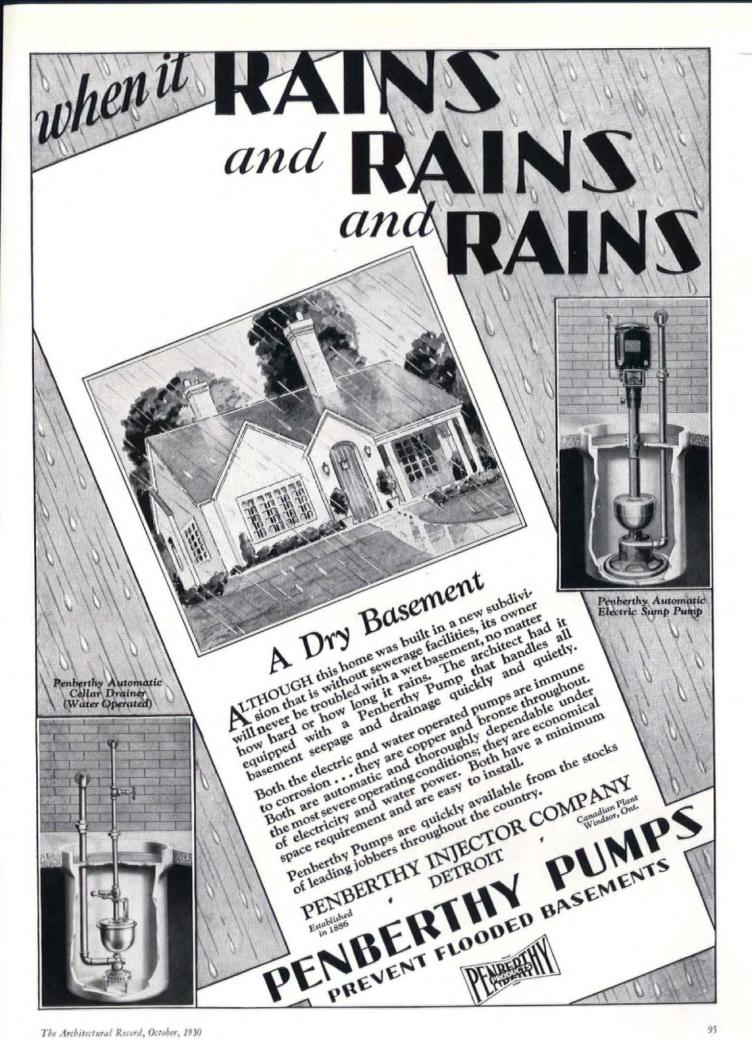
Commercial building, with unimportant deviations in 1923 and 1928 showed relatively the same general movements indicated for commercial transactions (check payments) throughout the period from 1919 to 1929, inclusive, except that for the first half of this period commercial building was on a lower plane than commercial transactions while in the latter half it was distinctly above. That there has been some commercial building in the past few years in excess of actual demand may, it seems, be reasonably inferred from this comparison, though, of course, factors of rising land values, obsolescence, and replacement have contributed largely to swell activity in commercial building. On a relative basis it would also appear that new industrial construction—at least during the five years ended 1929—has been expanded beyond demands of increased industrial activity as measured by the industrial production index of the Federal Reserve Board. In the

period from 1921 through 1924 the two movements were in striking agreement, while in 1919 and 1920 industrial construction was far in excess of industrial output just as was the case in 1928 and 1929 and still seems to be the case for 1930.

That wholesale prices for building materials continued downward throughout August and into September in the face of a rising general commodity level due almost entirely to stronger prices for farm products and foods emphasizes the current depression in the construction industries. The general index of building materials is still above the general commodity level. Reports have accumulated to indicate that actual wages under existing union scales in the building trades have been accepted in certain localities; while increased efficiency on the part of building artisans, usually noted in times of slack employment, has operated to lower unit construction costs.

It would appear unlikely that lowered building costs can alone provide a basis for revival in building activity. Space occupancy can no more be doubled by a halving of unit rental costs than can the consumption of meat be increased 100 per cent by a 50 per cent reduction in price, though the demand for food is, to be sure, somewhat more inelastic. Any genuine impetus must come from a closer gearing of supply to demand. In the field of residential building much of "the rough road" has already been traveled but in the principal branches of non-residential building it would appear from the record for 1930 that this movement has only lately begun. Though we speak of easy money, in reality money for the building of projects other than essential is virtually non-existent; especially is this true since lending institutions are known to be tending towards increased conservatism in their desires to appraise better the all-important relationship of supply and demand.

L. SETH SCHNITMAN





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REVIEWS OF NEW BOOKS

ESTIMATING CONSTRUCTION COSTS, G. Underwood. *McGraw-Hill Co.*, N. Y., 1930; 620 pp. \$6.00.

APPRAISERS AND ASSESSORS MANUAL. Prouty, Collins and Prouty. McGraw-Hill Co., N. Y., 1930; 500 pp. \$5.00.

NEW BUILDING ESTIMATORS' HANDBOOK. William Arthur. Scientific Book Corp., N. Y., 1930; 1024 pp. \$6.00.

These books are all put forth to make estimating easy. Quantity surveying methods and means of computing construction costs are indicated. The first volume contains good charts for rapidly estimating labor time charges on various methods of construction. The second book is primarily for taxation purposes, but offers assistance to the architect and engineer: various building types are analyzed. The third book is a revised edition of an older work.

INSPECTOR'S POCKET BOOK. Austin T. Byrne, revised by S. T. Goldsmith. 244 pp.

A handbook for building inspectors, printed in offset from typewritten sheets. Material is presented in condensed, outline form.

PERSPECTIVE PROJECTION. E. I. Freese. Pencil Points Press, N. Y., 1930; 43 pp.; 10 plates.

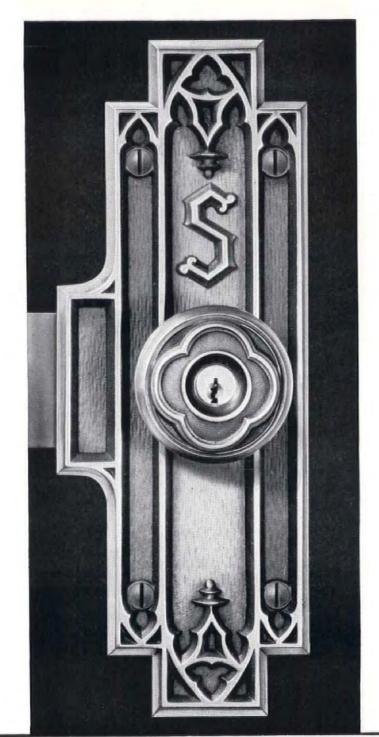
This is another of the large group of handbooks that indicate methods of drawing buildings and other objects with horizontal vanishing points. Perspective is not applied to vertical lines as in reality nor is isometric drawing, a far more convincing method of indication, given a single page of comment or illustration. However, simple methods of projection, minimizing drafting, are given ample discussion.

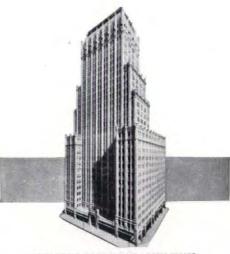
PROMOTING NEW HOTELS. W. I. Hamilton. Harper and Brothers, N. Y., 1930; 158 pp. \$2.50.

This book discusses, first, why (under what conditions) a new hotel building may fail to succeed financially and for good of a community; and second, how to plan a community's hotel development along sound and stable lines. Topics such as, Launching the Typical Community Hotel Project, Securing Business and Common Pitfalls, are covered. The book is not exhaustive in its treatment but worthwhile condensed data are offered.

ENGLISH MONASTERIES IN THE MIDDLE AGES. R. Liddesdale Palmer. Richard R. Smith Publishing House, N. Y., 1930; 233 pp. \$8.00.

A scholarly work presenting an outline of the origins and customs of the monastic orders. Cloisters, churches, extra-claustral buildings are illustrated and building methods discussed. Excellent as a historical document.





STERICK BUILDING, MEMPHIS

Architect: Wyatt C. Hedrick, Inc., Fort Worth, Texas.
Contractors: Bellows-Maclay Construction Company, Dallas, Texas.

2464 Corbin Unit Locks as used in corridor doors of Sterick Building, Memphis—tallest building in the South. Trinity design escutcheon bears letter "S", and this same letter appears on inside knobs. Finish, light statuary bronze. On the inside of the door plain bronze hardware used in light statuary bronze finish. The Trinity design letter drop is made especially for this building. Light statuary bronze finish with high lights polished.

No. 161½ Corbin cast iron butts are also used, polished and finished in light statuary bronze. Other Corbin items correspond in quality and finish,

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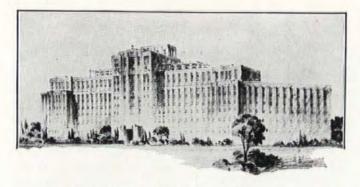
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RCA engineers design appara-tus to fit the job—the job is never forced to fit the apparatus.

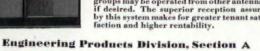


Descriptive pamphlets of this system and photographs of typical installations are available to architeets and hotel executives.

Without any obligation, we shall gladly prepare plans and estimates for installations of any size.

FOR APARTMENTS

Where the use of individual sets in the rooms, plugged into wall outlets, is desired, there is a separate RCA Centralized System especially designed for the independent use of as many as 80 sets of different makes, operated from a single antenna. Additional groups may be operated from other antennae, if desired. The superior reception assured by this system makes for greater tenant satisfaction and higher rentability.



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NOTES IN BRIEF

FAMOUS ARCHITECTS?

Who are the ten greatest American architects? This question has been raised by President Ricketts of Rensselaer Polytechnic Institute and referred to THE ARCHITECTURAL RECORD. Appropriate candidates for the profession's honor roll are sought so that their names may be inscribed on the stone spandrels of a building which is being erected at Troy, N. Y., to house the school of architecture.

The suggestion that the names should be limited to American architects came from Prof. Joseph Hudnut, Columbia University, in response to an inquiry from President Ricketts. His letter is reprinted herewith:

Dear Mr. Ricketts:

I have talked over the selection of the names of great architects, referred to in your letter. with several members of our staff. They are greatly interested. It seems to me that you ought to confine your selection to architects of the Renaissance, because the names of the greatest architects before that time are for the most part unknown. My suggestion is:

> Brunelleschi Peruzzi Palladio LeNotre Mansart Jones Bramante Sanmichele Michelangelo Wren Gabriel McKim

If I were in your place I would confine my selection to American architects. I think that that would be a unique and interesting thing to do, and it seems proper that American architects should, for once, be honored. Besides this would have a certain "publicity value": everyone would ask who these men were and how they happened to be selected from among the mass of architects. You would have a "Hall of Fame," like New York University. That, in turn, would have a good effect upon the status of the architectural profession: people would be surprised to learn that architects were of enough importance to have their names carved upon stone on the facade of a building. Did you know that in the entire world there is only one monument erected to the memory of an architect? 300,000 generals, 400,000 politicians, one architect.

Here are the ten greatest American architects:

Bulfinch Goodhue Renwick Burnham Sullivan Jefferson La Trobe Richardson McKim

I have included only those who are dead (physically).

Yours very cordially,

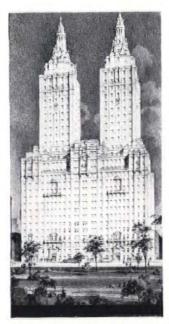
Joseph Hudnut

Criticisms, and additions to this list of architects are requested by President Ricketts in order to (Continued on page 100)

WHAT MADE THESE NEW YORK APARTMENT HOUSES EASIER TO RENT?...INCLUDE 11,076 KOHLER FIXTURES AND FITTINGS IN YOUR ANSWER



A bathroom with STANDISH vitreous china lavatory and VICEROY tub each having Kohler Dynamic fittings.



The San Remo, apartment at 74th and 75th Streets and Central Park West, New York City. Emery Roth, Architect. H. R. H. Construction Co., Builders, Sam Minskoff, Plumber. Dimock & Fink Company, Jobbers.

Beresford Apartment House, 81st and 82nd Streets and Central Park West, 82nd Streets and Central Park West, New York City. Emery Roth, Archi-tect. H. R. H. Construction Co., Builders. Frank B. Lassette, Plumber. E. F. Keating Co., Jobbers.

Apartment at 12 West 81st Street, New York City. Emery Roth, Architect. H. R. H. Construction Co., Builders. Sam Minskoff, Plumber. Dimock & Fink Company, Jobbers.

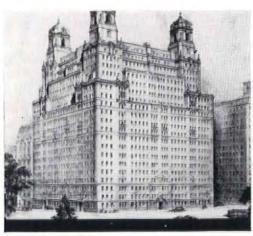
IN NEW YORK or any other place, the bathroom is the most important room in the house. You know it. Home-hunters know it. They look at the bathroom first. They expect, rightly, clear pipes, efficient faucets and drains. They want tubs of good design; lavatories, closets and fittings soundly constructed and in correct taste. They ask for -and get-colors that are clear and uniform.

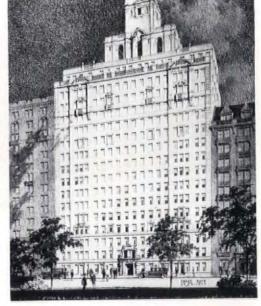
Architects recognize the trend. Generally, they follow the one wise practice: Specify the kind of fixtures and fittings that good taste, good business instruct. And in the best and finest places going up today-apartment houses never before equaled for size, luxury, and elegance of appointment-all-Kohler installations are increasingly evident. Here, for example, are three recent New York apartments, completely Kohler-equipped, with a total of 11,076 Kohler fixtures and fittings!

It's perfectly logical that all-Kohler installations should make any apartment house or a home easier to rent or sell-especially where competition is severe. If the bathroom and the kitchen are right, the whole place gets credit. High principles in plumbing are evidence of high principles at other critical points. Actual money savings add to the vearly dividends of satisfaction and security.

Kohler Co. Founded 1873. Kohler, Wis.-Shipping Point, Sheboygan, Wis.—Branches in principal cities. . . . Look for the Kohler trade-mark on each fixture and fitting.







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The new Jacobson Catalogue



MODERN Design

Tor the last twelve months the designers and modelers of Jacobson & Company have been at work compiling the material for this new Catalogue. The new models pictured are the creation of our own designing staff, and have been selected for publication as being eminently usable in various types of buildings.

May we send you your copy, free?

Now that the new Catalogue is printed, bound and ready for distribution, we are presenting a complimentary copy to all recognized architects, builders and decorators.

In order to verify your present address, won't you please drop us a line on your letterhead. Deliveries of the book are made in the same order in which requests are received.

JACOBSON & COMPANY

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NOTE: Models listed in former catalogues are always available.

NOTES IN BRIEF-Continued

determine the consensus of opinion in the architectural profession. Suggestions may be sent either to the editorial department of The Architectural Record or to Prof. Ralph G. Gulley, dean, Rensselaer School of Architecture, Troy, New York.

ANNOUNCEMENTS

PHILIP H. JOHNSON, architect and engineer, announces the removal of his offices from the Widener Building to the twenty-second floor of the Architects Building, Seventeenth Street at Sansom, Philadelphia.

G. Massera and A. V. DuPont have recently arrived from France to practice architecture in this country. Their temporary address is Nemours, Wilmington, Delaware.

Samuel Marvin Smith, architect, announces the removal of his offices to 615 Shoreham Building, 15th and H Streets, N. W., Washington, D. C.

GEORGE R. CALLIS, JR., architect, announces the removal of his offices from the eighteenth and nineteenth floors of the Hearst Tower, Baltimore, to his new offices and studio at 13 Melvin Avenue, Catonsville, Maryland, and requests that manufacturers accordingly change their mailing lists.

ERNEST HOWARD YARDLEY, architect, 112 South 16th Street, Philadelphia, wishes to announce that he now has as associates J. Layng Mills of New York and Leon J. Meyung.

GEORGE BURDETT FORD

George Burdett Ford, architect and city planner, who died on August 15 was born in 1879 at Clinton, Mass. Mr. Ford was graduated from Harvard University in 1899 and afterward took up engineering and architecture at the Massachusetts Institute of Technology and at L'Ecole des Beaux Arts, Paris.

Notable in Mr. Ford's work was his service as consultant to the Committee on City Planning of the Board of Estimate and Apportionment of New York City and to the Commission on Building Districts and Restrictions. From his work on the latter commission emerged largely the present New York zoning and height regulations. Mr. Ford had been an advisor to the Regional Plan of New York and Its Environs since its inception and was one of a group of planners who made the preliminary study of the region and prepared maps dealing with land uses and means of traffic.

Among the cities he helped to plan were Trenton, Newark, Jersey City, Passaic, Elizabeth, Perth Amboy and East Orange, N. J.; Port Chester, New Rochelle, Mamaroneck, Ossining, Tarrytown, Scarsdale, Mount Kisco and Glen Cove, N. Y.; New Haven, Conn.; Springfield and Worcester, Mass.; Wilmington, Del.; Chester, Pa.; Cincinnati and Dayton, Ohio; Louisville and Lexington, Ky.; Richmond and Norfolk, Va., and Charleston, S. C.

(Continued on page 102)



ALTHOUGH Brixment mortar is as smooth as a straight-lime mix, it contains no lime and therefore requires no slaking.

It is a true cement that can be mixed by hand or machine and used as soon as delivered on the job.

One part Brixment and three parts sand alone make a perfect mortar for every kind of masonry.

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PHILIPPINE

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INDOAKO is steadily gaining in popularity for all types of work: residences, office and public buildings, churches and schools. Paneling is by no means the only use to which this remarkable hardwood is put, although it is there that its beautiful quarter-sawn ribbon grain shows up to greatest advantage. INDOAKO is ideal for all interior trim, flooring, doors, cabinet work, church pews, etc. Its strength and durability, its ease of working and finishing and the excellent sizes in which it is available, combine to make it one of the most adaptable of hardwoods. And it is reasonable in cost, because imported duty-free from an American possession. Get all the facts about INDOAKO. The coupon will bring them to you, free of charge.

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FLAT ROOFS AND DOCTORS

"Although many of us have collaborated with doctors in the planning of hospitals, we have hardly realized yet the importance of their point of view in the arrangement of houses. Lens has a genuine complaint, for he speaks from a personal experience. He lives on the northern edge of St. John's Wood, in an oldish house with a pitched roof, except for one small part 13 ft. square, which has a flat roof. To the latter, access has been made, and for a few pounds Lens has acquired 'a new living room, a new toy, a sleeping place, a solarium and an observatory.' This experience leads him to the declaration, 'All these pitched roofs . . . represent stupid waste of . . . civic area.'

"We have much sympathy with the doctor's point of view. We will summarize the objections to it; as shortly as possible because to do so will seem to our modernist friends like crossing the t and dotting the i of obscurantism. A flat roof with a suitable surface for walking on, and protected by a parapet, is dearer than a pitched roof: an airspace between the ceiling and the roof gives insulation from heat in summer and cold in winter; it follows there is less risk of condensation; the tiles or slates covering a pitched roof are rather more reliable than the coverings of a flat roof; the elimination of pitched roofs will cause a wide dislocation of employment. But our main difficulty is with our clients, whom Lens would like us to persuade to his point of view. For our clients usually like sloping roofs, but entirely for sentimental reasons.

Can we blame our clients for preferring the cheerfulness and assurance of pitched roofs to the dubious delights of sun-bathing with flies, or snoring to thunder; or for holding that any number of Bathshebas fail to banish the impression that

German housing schemes look dull?

But in so far as Lens considers there should be closer relations between his profession and ours, both our clients and ourselves agree. We are a nervous generation and health seems to us the prime necessity; just as the soldier moulded the buildings of the Middle Ages, and the gentleman those of the Renaissance, so the doctor's influence is predominant today. Every house-building client must be asked if he wants a solarium, either on the roof or as a recessed veranda or loggia, and even though we retain our slopes over the main blocks, we can form a flat roof in a subsidiary position and

August, 1930

A CORRECTION

In the Technical News section of the September, 1930 issue, the captions under the Savarin Restaurant, Graybar Building, New York City and the Savarin Restaurant, New York Life Insurance Building, should have been credited to The John Van Range Company.

We wish to add that technical information was obtained from Planning Restaurants That Make Money, published by the John Van Range Company.

Stedman Reinforced Rubber Tile



Grey Walnut Gold Grey with veinings of Walnut and Gold

in natural color veinings

offers the complete floor • • quiet, comfortable, and wear-resisting • • with twenty-seven color types permitting unlimited arrangement in design to meet the exacting needs of each interior • • And service from creation to installation, by experts • • A booklet with color charts will be sent you gladly.

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Grey with veinings of
Black and Cream



Walnut Paisley
Walnut with veinings of
Gold and Cream



O.S. Cream with veining of Black



Black White Black with veining of White



Brown Green Paisley
Brown with veinings of
Sea Green and Black



White Sea Green White with veining of Sea Green



Black Red Black with veining of Dark Red



Sea Green White Sea Green with veining of White



Slate Red Paisley Slate with veinings of Dark Red and Cream



Brown Black Brown with veining of Black



Buff Black Buff with veining of Black



Dark Red



Napoleon Grey Grey with veinings of Pink, Cream and Black



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Evidenced in Wide Spread Use

In answer to the modern vogue for color the P-A-X Monophone may now be had, not only in black, but also in a variety of beautiful colors. Made of solid colored synthetic resins with chromium or gold plated fittings.

To make QUALITY the determining factor in the selection of efficiency devices for office or factory is no more than just good business. This is why the leaders of American business and industry have consistently selected Strowger P-A-X in preference to all other interior telephone systems. They know that, while it is possible to buy cheaper

equipment, only Strowger P-A-X can be depended upon to render swift, accurate and trouble-free communication service, day after day, and year after year, with a minimum amount of attention.

The quality which is built into Strowger P-A-X is based on definite, tangible facts. The apparatus of which it is constructed is exactly the same in design as those used for public service—made by the same organization and subjected to the same rigid inspections and exhaustive tests—to meet the exacting needs of the world's foremost telephone administrations, for whom reliability is a religion, and long life an economic necessity.

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MODERNISTIC

Five exclusive Modernistic designs by Russwin are shown on this page. The illustrations are about one third size. Russwin, acknowledged originator of distinctive Modernistic hardware of the finest metals (Bronze or Brass), is constantly adding to its line, thus keeping pace with all that is new and authentic in architectural thought and design. Russell & Erwin Manufacturing Company (The American Hardware Corporation, Successor), New Britain, Connecticut—New York, Chicago, London.

creations in HARDWARE *
by RUSSWIN











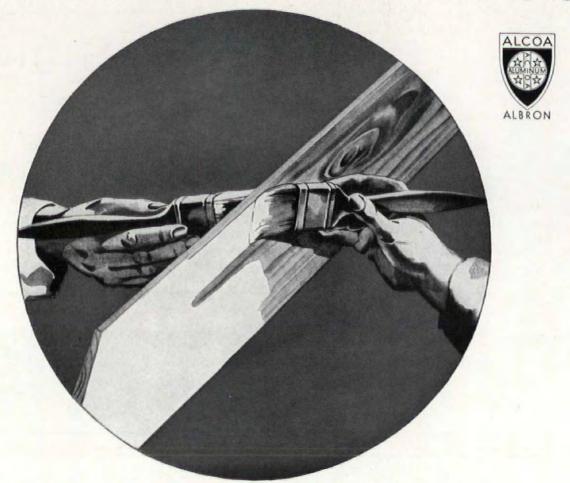


For the architect's convenience, Russwin Hardware is illustrated and described in Sweet's Catalogue — pages C-3137; C-3216.



Hardware that lasts - Base Metals of Bronze or Brass

ALUMINUM PAINT-THE COAT OF METAL PROTECTION



Both sides of lumber absorb moisture— Prime both with Aluminum Paint

Don't overlook the fact that lumber has two sides. When you prime one side only you have done but half of the real priming job. Moisture penetrates wood from both sides.

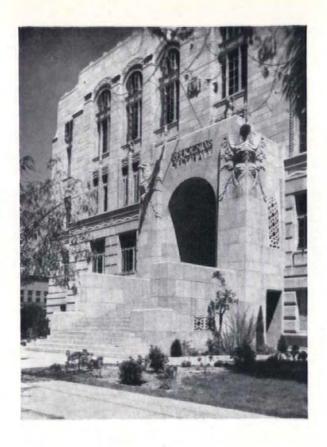
Specify priming and back-priming with aluminum paint. Then you are sure of a finished paint job that is really permanent. You are sure that the beauty of the paint and the beauty of the architectural detail will not be ruined by warping and checking of the lumber.

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Aluminum Company of America does not sell paint. But aluminum paint made with satisfactory vehicles and Alcoa Albron Powder may be purchased from most reputable paint manufacturers, jobbers and dealers. Be sure the pigment portion is Alcoa Albron and is so designated.

Let us send you the booklet, "Aluminum Paint, the Coat of Metal Protection". Address ALUMINUM COMPANY of AMERICA; 2467 Oliver Building, PITTSBURGH, PENNSYLVANIA.

ALCOA ALBRON ALUMINUM PAINT

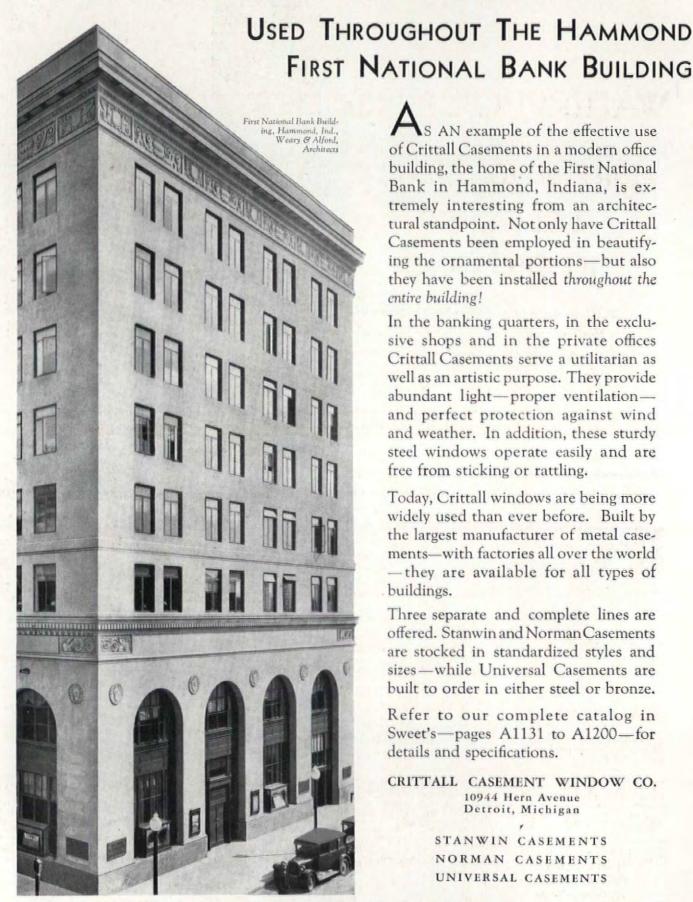


A monument which could be achieved only in TERRA COTTA which affords opportunity to employ color texture and monumental sculpture.

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Maricopa Co. Court House, Phoenix City Hall, Phoenix, Arizona. Edward F. Nield-Rescher & Mahoney, Associated Architects.

CRITTALL CASEMENTS



S AN example of the effective use of Crittall Casements in a modern office building, the home of the First National Bank in Hammond, Indiana, is extremely interesting from an architectural standpoint. Not only have Crittall Casements been employed in beautifying the ornamental portions—but also they have been installed throughout the entire building!

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Refer to our complete catalog in Sweet's—pages A1131 to A1200—for details and specifications.

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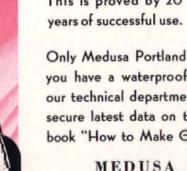
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Cements (white or gray). Best of all, it will be permanent. This is proved by 20 years of successful use.





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Seventy Years of Bank Service

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CEILINGS THAT SEEM TO DISAPPEAR!

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Only Carrara Glass can give beauty like this, and at the same time offer so many practical advantages. For, in addition to its endless possibilities for modern decorative effects, Carrara Glass is strong, free from imperfections, uniform in thickness; has a hardness that is impervious to chemicals and water. Its highly polished surface is easily kept clean and sanitary.

Whether your specifications can best be met by Black Carrara, White Carrara, or white, rippled-surfaced Frostex, you will find the same high qualities in each. All three types of Carrara may be obtained in convenient size slabs, handled and installed like marble. For complete information on this structural material of new beauty, inquire of our branch warehouse in your city. Or write the Pittsburgh Plate Glass Company, Carrara Department, Grant Building, Pittsburgh, Pa.

Modern Structural Glass

The New Dahlquist Turbo-Aquatherm

(U. S. Patent No. 1,762,215 June 10, 1930)

Experts have long recognized that the ordinary hot water boiler serves as an efficient sediment trap. This is due to the fact that it contains a relatively large volume of quiet water and hence any sediment or insoluble matter which normally remains in suspension in the water lines gradually sinks to the bottom of the boiler.

This continual accumulation of sediment is one of the greatest enemies of the efficient satisfactory operation of the hot water boiler. If allowed to accumulate long enough it will cause surges of rusty muddy water in the hot water line and in the case of underfired or automatic storage units, it forms an insulating blanket on the bottom between the water and the metal itself which is the greatest cause of burnouts. Furthermore hot water accumulated in the ordinary boiler becomes stagnant and unsuitable for domestic purposes.

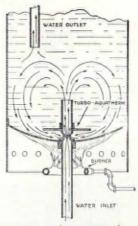
The TURBO-AQUATHERM

(U. S. Patent . 1,762,215 June 10, 1930)

In order to absolutely prevent the accumulation of sediment which is the great enemy of the efficiency and life of hot water boilers, Theodore W. Dahlquist has invented a device called the TURBO-AOUATHERM which takes advantage of the velocity of the incoming cold water to create a suction

and a whirl which constantly sweeps and scours the bottom of the boiler carrying every particle of foreign matter out of the system. No sediment can ever accumulate in the Dahlquist TURBO-AQUATHERM Copper Boiler and the water is always as fresh as that in the cold water lines and may be safely used for cooking as well as for other nousehold purposes. Furthermore the danger of burnouts in automatic storage and underfired systems is eliminated and the thermal efficiency of the boiler is greatly increased. The accompanying sketch shows clearly the action of the TURBO-AQUATHERM which may be had with little additional cost on all Dahlquist range boilers and automatic storage.

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Arrows show action of water when drawn thru TURBO-AQUATHERM scouring bottom of boiler and preventing any accumulation of sediment



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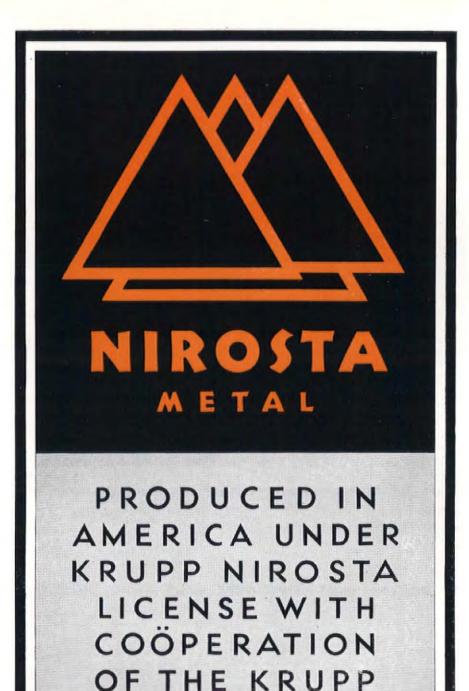
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1919 — At Montreal, 65 tons on one pile caused no settlement. Contract for Montreal Harbour Comms., F. W. Cowie, Ch. Eng.



1916 — This 70 ton test made on 1 Mac-Arthur Pile at Port Arthur, Texas. No settlement. Wm. B. Ittner & Assoc., St. Louis, Archts, and Engrs.



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18 L LIGHT WEIGHT CHANNELS

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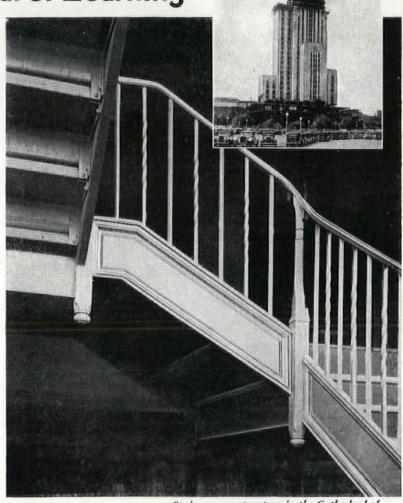
The advantages of J & L Light Weight Channels-the saving in weight, ease of fabrication and installation, and neat appearance of the finished jobappeal to architects and engineers for all types of stair construction, from small installations in homes to the large stairways in buildings like the Cathedral of Learning.



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10"- 8.0 lbs. 10"- 8.8 lbs.

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Stairway construction in the Cathedral of Learning, Pittsburgh, Pa.

Charles Z. Klauder, Philadelphia.

Contractor:

Stone & Webster Engineering Corp.

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(Note the neat fitting mitres and the pleasing application of the decorative molding to the J & L Light Weight Channel Stringers.)

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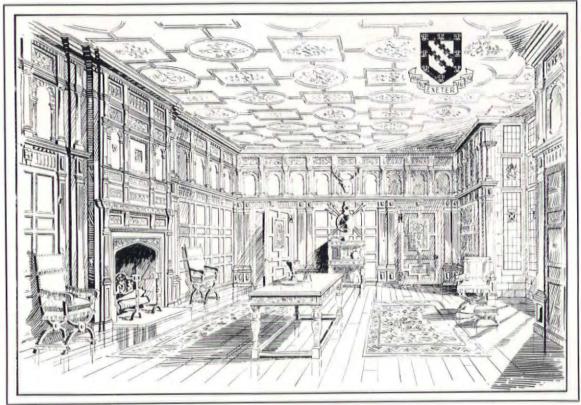


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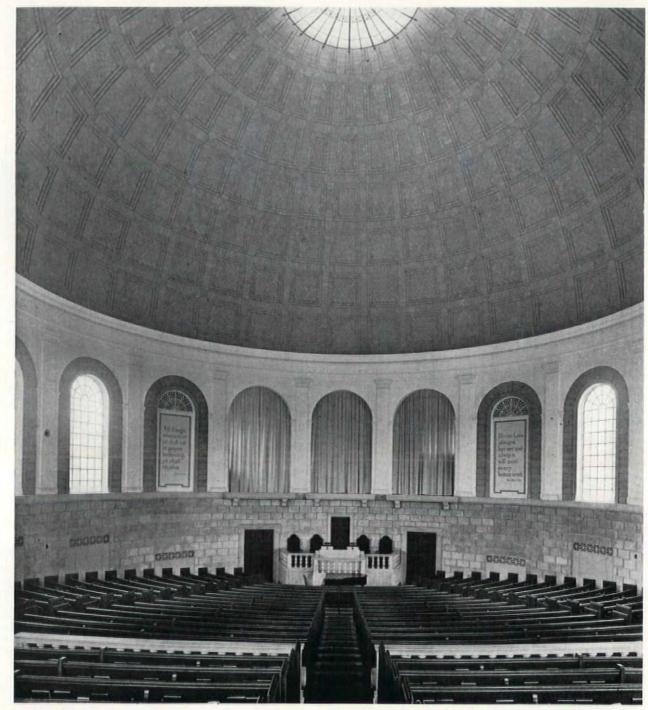
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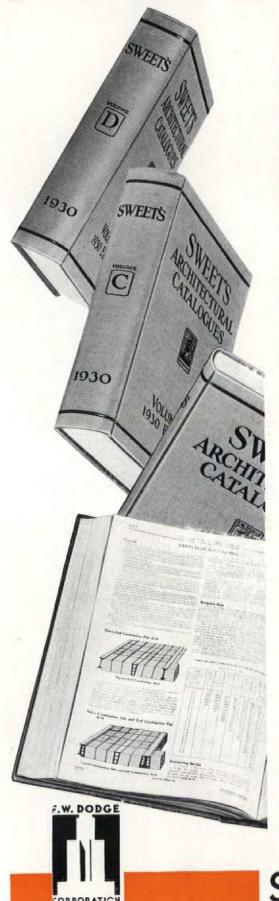
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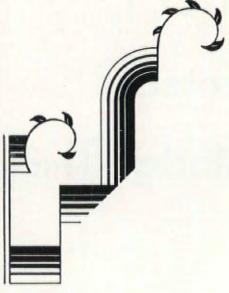
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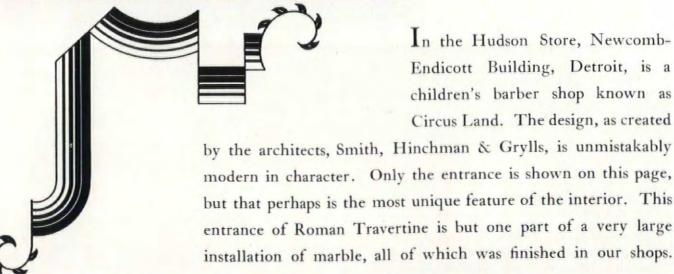
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THE MODERNISTIC MOVEMENT Plate 3

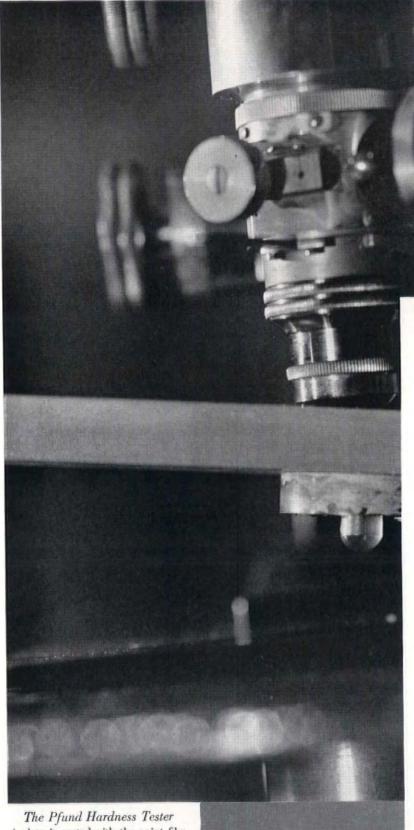


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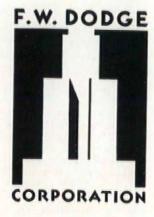
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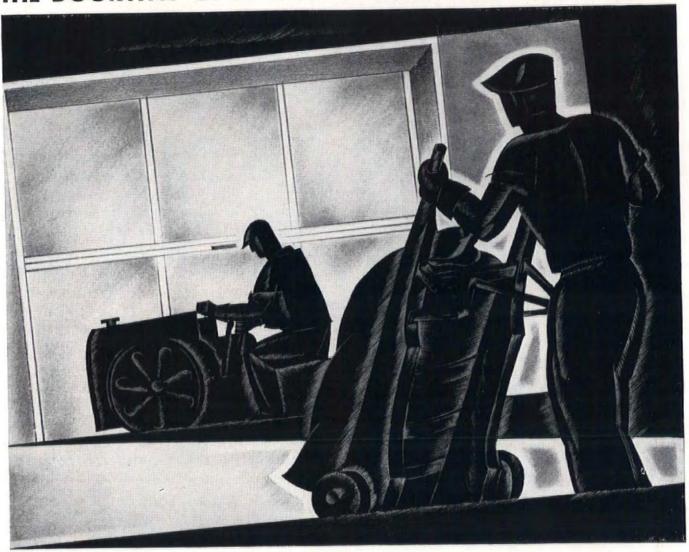
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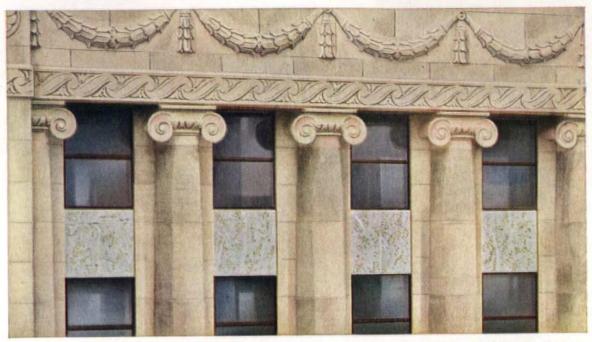
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See details and other information overleaf



Tower portion of Newark & Essex Bank Building. Alberene Stone Spandreis used at 32nd and 33rd floor levels—on all four elevations.

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Details of Alberene Stone Spandrels

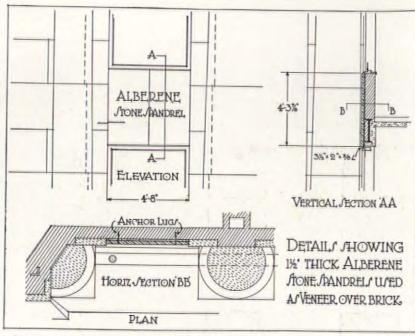


Figure 1. Alberene Stone Spandrels as installed on the 32nd and 33rd floors of the Newark & Essex Bank Building

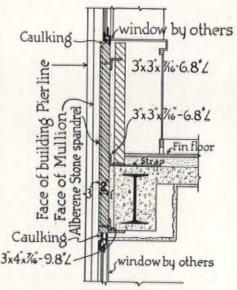


Figure 2. Another installation; in this instance the 11/2" thick Alberene spandrel is backed up with a 2" brick wall, providing space for radiators to be recessed in the wall.

Information for the Specification Writer on Alberene Stone Spandrels

FIGURE 1 shows Alberene Stone Span-Drels adapted to Single Window construction backed up with a full thickness brick wall. In this instance the Alberene Stone is merely a veneer and is used to provide a color and texture contrast to the limestone. Each spandrel is made up of two slabs (vertical center joint with the veining symmetrically matched. These slabs rest on $3\frac{1}{2}$ ' x 2'' x $\frac{3}{8}$ '' angles and are secured to the wall with anchor straps.

EXTRA FLOOR SPACE

Figure 2 shows how the use of Alberene Stone Spandrels with a 2" thickness of brick leaves adequate space for radiators to be installed without using valuable floor space. The weight of the wall is also reduced.

Although Alberene Stone was considered first from the standpoint of beauty, the use of Alberene Stone Spandrels offers definite structural advantages as well.

SPECIFICATIONS

MATERIAL (Double Spandrels). All spandrels to be structurally sound soapstone, grade equal to Alberene Stone. Stone not to be less than 1½" thick at thinnest point. Each pair of spandrels to be securely bolted to three horizontal angles extending 2" beyond spandrel at each end.

Bottom angle to be $3"x4"x\frac{7}{16}"$, center and top angles to be $3"x3"x\frac{7}{16}"$. Mullion to be $3\frac{3}{4}"x3\frac{3}{4}"$ soapstone, rebated and bolted to steel flat $3\frac{1}{2}"x\frac{1}{2}"$.

Construction (Double Spandrels). Spandrels to be embedded in masonry 2" on each side, angles extending 2" farther into masonry to provide additional anchorage. Center angle to be bolted to unfinished floor by straps on 16" centers.

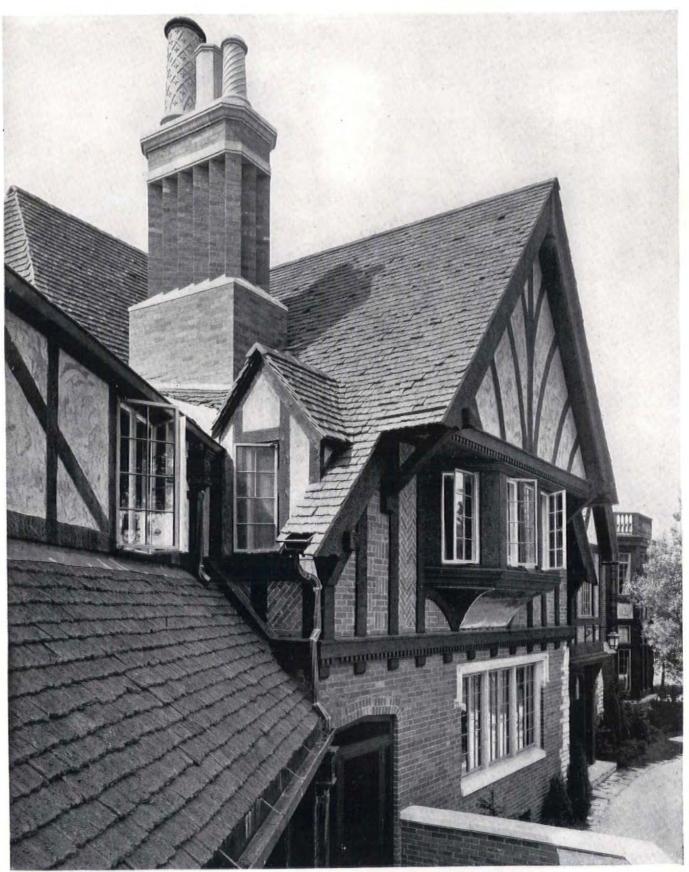
(Single Spandrels). (a) Spandrels to be embedded in masonry 2" on each side. (b) or, where spandrel is not embedded in masonry at sides it shall rest on $3\frac{1}{2}$ " x 2" x $\frac{3}{6}$ " angle and be secured to the wall by anchor straps.

Special Cases. Where window is set with deeper reveal than face of spandrel, provide counter sill. Counter sill to be rebated for metal window frame and securely bolted to spandrel. Also provide soffit return for lintel at window head. Soffit to be bolted to under side of the 3"x4"x 16" angle.

Note. Angles are not needed with single spandrel unless of excessive dimensions requiring multiple units. Where space is not larger than 4'0" x 4'0", we recommend the use of single slab rather than built-up spandrels.

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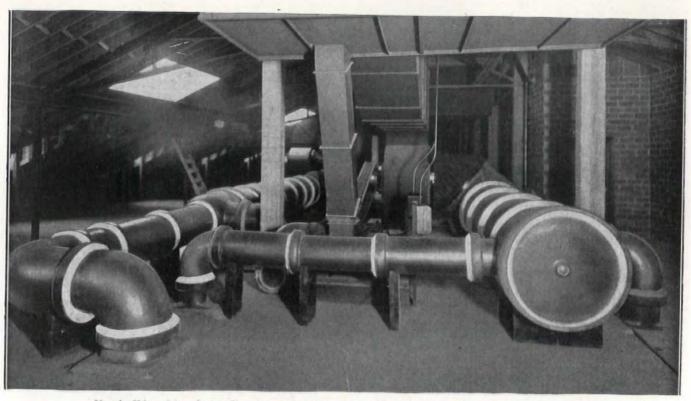
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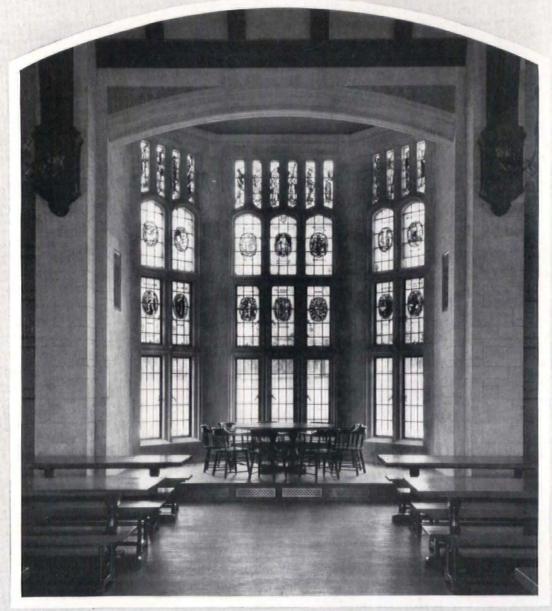
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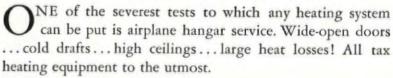
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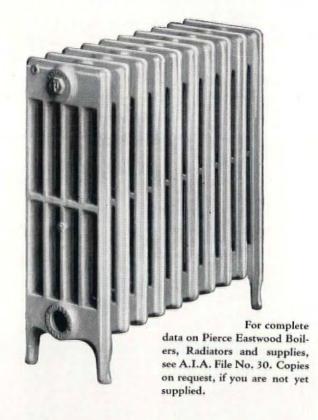
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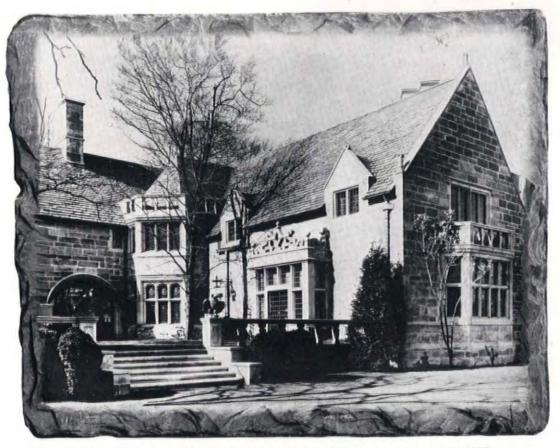


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Recent work in America done by this office includes the 36-story Niels Esperson Building, Houston, Paradise Theatre and Commercial Building and the Valencia Theatre, both in New York, New Warner Theatre, Newark, N. J., Central National Bank, here pictured, and the Arcade Building, both in Richmond, Midwest Theatre and Office Building, Oklahoma City, Avalon Theatre, Chicago, United Artists Theatre, Louisville, Loew's Theatre, Akron, and the Majestic Theatre and Office Building, San Antonio. Work in foreign countries includes a new theatre and office building in Melbourne, Australia, a new theatre on Poissonniere Boulevard, Paris, Capital Theatre, Sydney, and a theatre for Union Theatres, Ltd., Adelaide, both in Australia.

John Eberson is a graduate of a university in Vienna. Until recently he maintained offices in Chicago and New York, now both organizations are combined in the latter city. Drew Eberson, his son, is associated with him.

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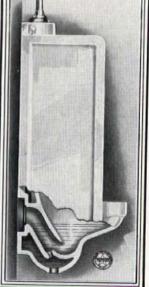
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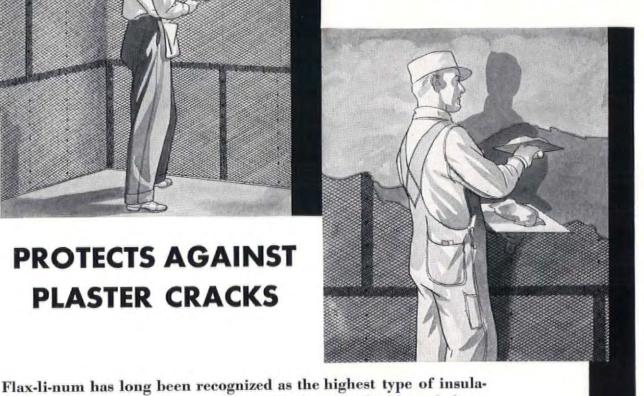
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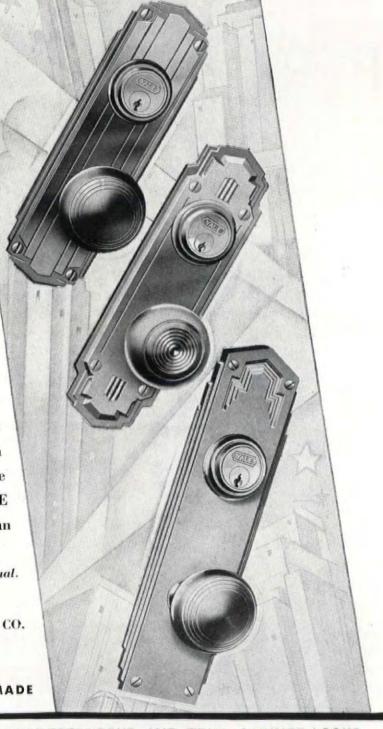
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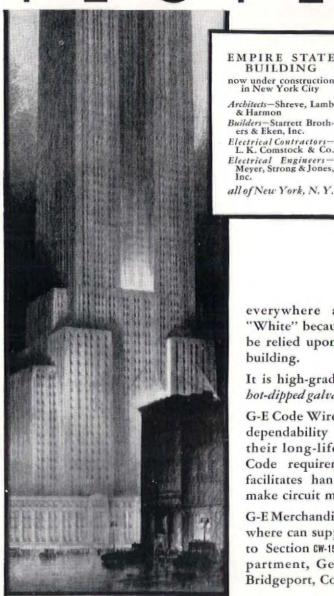
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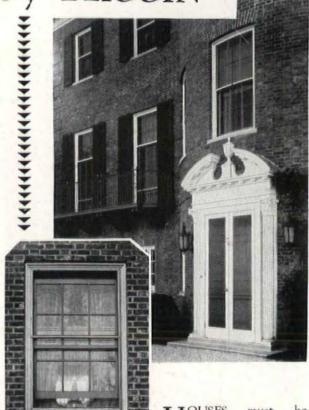
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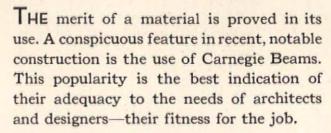
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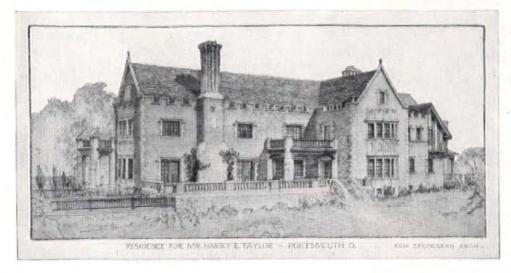
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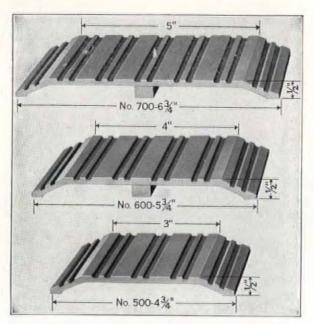
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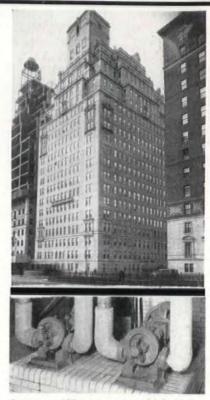
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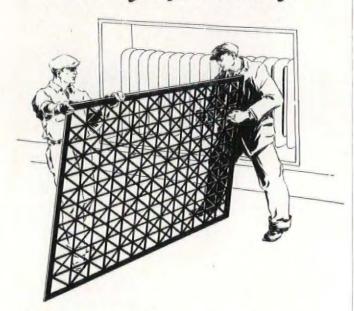


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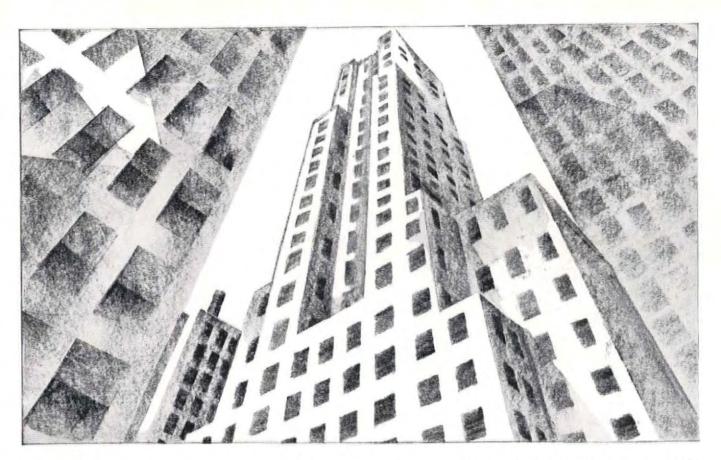
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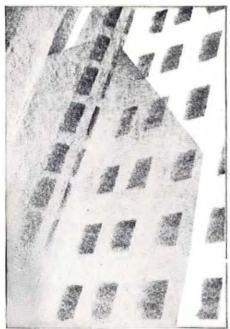
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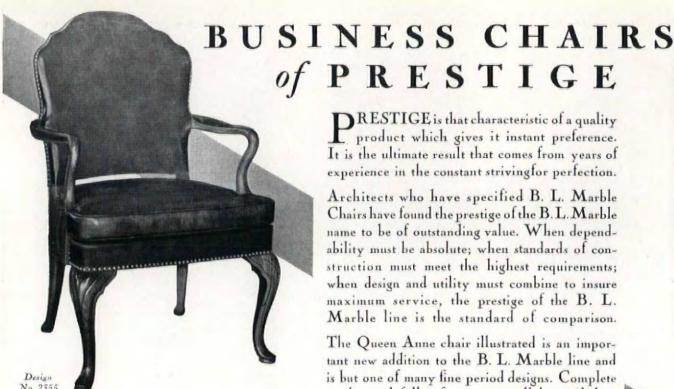
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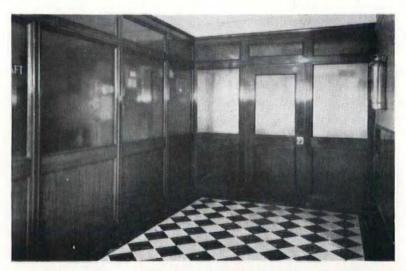
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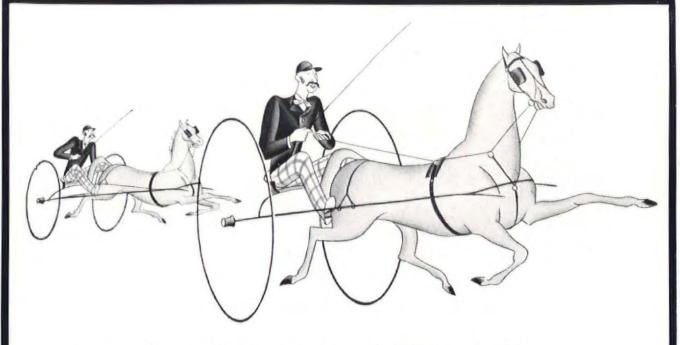
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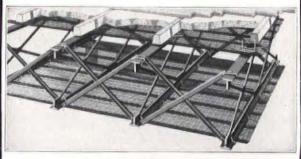
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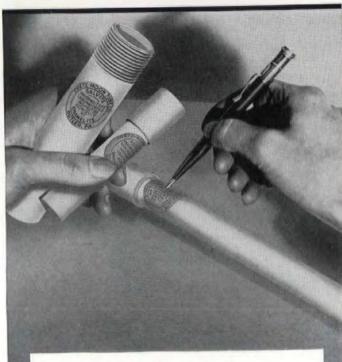
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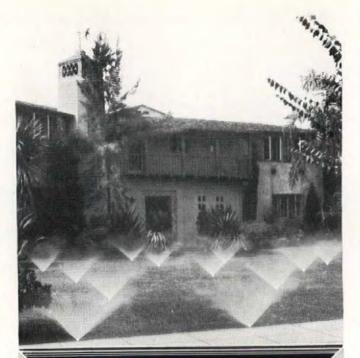
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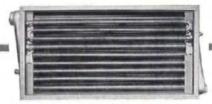
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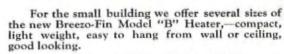
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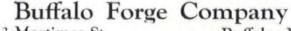


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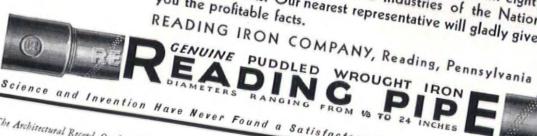
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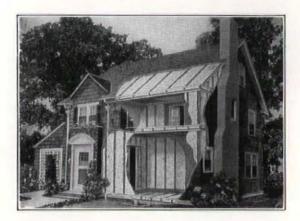
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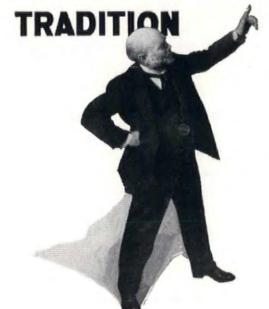
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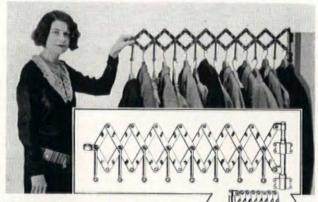


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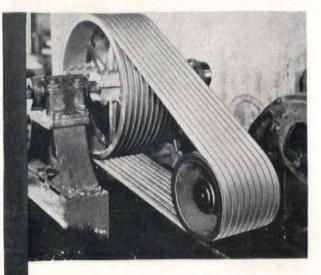
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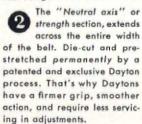
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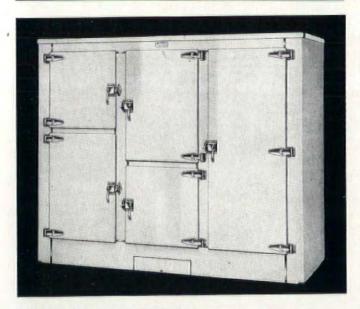


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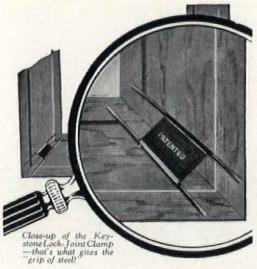
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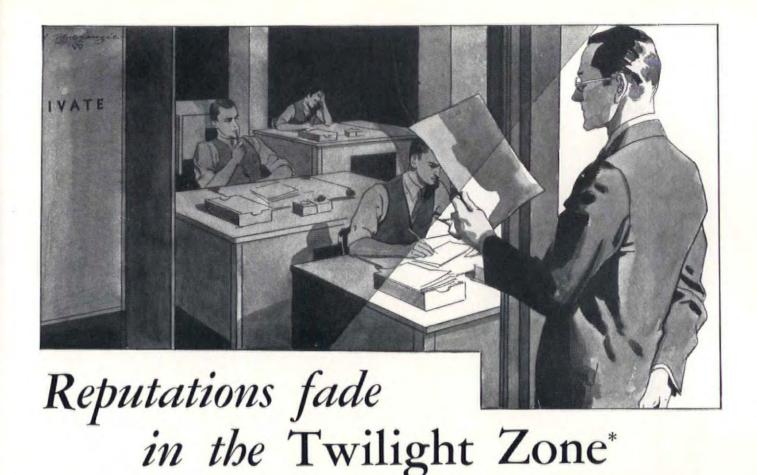


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HILE multiple in its facili-

ties, the fine new North Station and Boston Arena is singular in its construction standards. Even more than the demand of materials for embellishment was the call for materials of durability.

The CONFIDENCE placed in Bridgeport "Plumrite" Pipe was basic. In upwards of fifty years of service records its durability has been proved - the ability and scientific knowledge of its makers has been established.

CONFIDENCE! Bridgeport "Plumrite" has won it simply by day in and day out reliability. That, after all, is the test of the worth of a pipe.



There is a Bridgeport Plumrite
Pipe (trade-marked every nine
inches) for every type of service. We will recommend the
correct pipe for specific conditions on request.

"Plumrite" Standard

For Good Water Conditions. Contains 60 % Copper and 40% Zinc. Can be bent hot and cold.

"Plumrite" 67 % For Good Water Conditions. Contains 65% to 68% Copper—balance Zinc. Can be

bent cold only. Furnished on request.

"Plumrite" Admiralty
For Hot and Cold Salt Water.
Contains 70% Copper, 1%
Tin, and 29% Zinc.

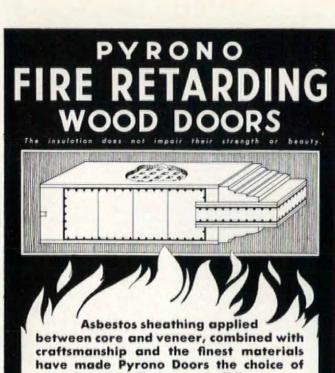
"Plumrite" 85 % "Plumrite" 85 %
For Chemically Treated, Salt, and Corrosive Waters and Ground Service. Contains 85 % Copper, 15 % Zinc.
"Plumrite" Copper
For Chemically Treated and Acid Polluted Waters. Contains 99.99 % Copper.

umrite Brass

COMPANY Manufacturers - General Offices, BRIDGEPORT, BRIDGEPORT BRASS

Cleveland Detroit Philadelphia Boston Buffalo Newark Providence Dayton Louisville Syracuse New York Chicago

The Architectural Record, October, 1930



such nationally known buildings as

Columbia Presbyterian Hospital, N.Y. Union Station, Chicago Federal Reserve Bank Bldg., Chicago St. Regis Hotel, New York Ohio Bell Telephone Building Fisher Building, Detroit Equitable Trust Building, New York St. George Hotel, Brooklyn

Also COMPOUND KEY-VENEERED DOORS and TRIMOUNT SOUND-INSULATED DOORS

See Our Catalog in Sweet's

THE COMPOUND AND PYRONO DOOR CO. St. Joseph, Michigan

VENEERED



UNIQUE DISTINCTION in this HOTEL RADIO Equipment

The Ortho-Tone Company, originators of "radio in every room" systems, for hotels, again pioneers in this field with the Ortho-Tone Pra-1-40. A machine which, though smaller, embodies all of the advantages of the larger Ortho-Tone machines. Ortho-Tone Pra-1-40 is designed for small hotels, schools, and high-class tourist camps. schools, and high-class tourist camps.

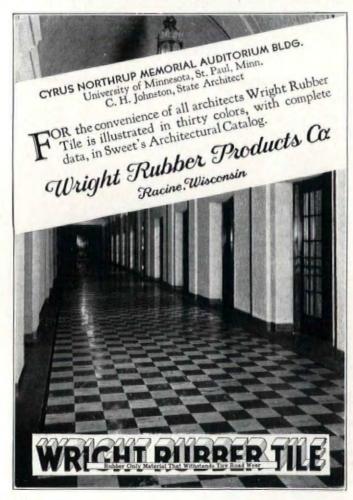
Ortho-Tone also offers their regular line of proved radio fixtures. A ceiling fixture which combines lights, fan, and loud speaker with special non-radiating features which prevent room-to-room interference, a wall panel which permits the guest a

greater selection of program—these are but a few of the advantages to be found in Ortho-Tone equipment.

To further aid the profession the Ortho-Tone Company has prepared a booklet "Radio in Every Room," in which they offer the results of their experience as builders of fine hotel radio equipment. ment. The widespread use of Ortho-Tone installation gives the manufacturers an opportunity to meet radio needs of any kind. The booklet is yours for the asking.











Self-Releasing Fire Exit Latches

The Satisfaction of Sheer Strength

To the man who admires good craftsmanship, there is great satisfaction in things that are made as strong as men know how to make them; there is something close to exaltation in the feeling of sheer strength, of durability, of dependability. Here is something that will LAST!

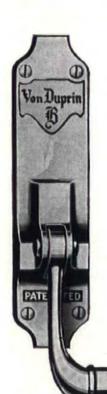
For such men we make the new series genuine Type "B" Von Duprin devices. They are made very carefully, from the best materials we know, with far heavier parts than were formerly thought practical. Higher in first cost, they are far cheaper over the life of the building, for maintenance expense is practically eliminated.

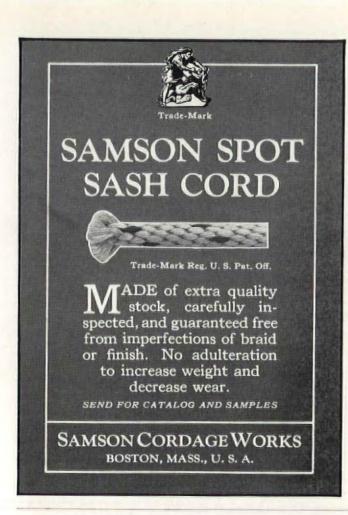
To get them, specify them separately from the finishing hardware and, of course, by name. Thus you foster clean competition, since all reputable dealers can buy these devices at the same fair prices.

VONNEGUT HARDWARE CO. Indianapolis, Ind.

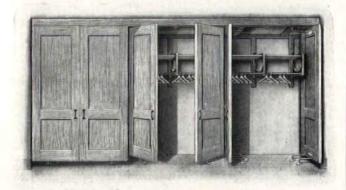
Listed as Standard by Underwriters Laboratories

Sweet's Pages C3130-C3135









Evans "Vanishing Door" Wardrobe Class A-A, without jambs or trim

HERE is an ideal school class-room wardrobe, low in cost yet meeting every demand of the most exacting. This wardrobe is made for plaster ends, backs, and ceilings; no jambs nor trim being required. When so desired blackboards can be furnished for the doors, giving a continuous blackboard surface.

The "Vanishing Door" hinges on which the doors are hung are made with double pivoted arms and swing the doors back into the wardrobe entirely out of the way. There are no noisy tracks nor rollers to stick or bind, nor intricate mechanism to get out of order. These hinges are guaranteed to last as long as the building.

All wardrobes are furnished complete in the knockdown, with all woodwork cut to size, and only need to be secured in place. The hinges are easier to put on than common butt hinges. The entire cost of installation is small.

Many types of school wardrobes are fully illustrated, described and detailed in Catalog "K". This catalog is of A. I. A. file size and can be had for the asking.

W. L. EVANS

Washington, Indiana, U.S.A.

VANISHING DOOR WARDROBES

WE WILL PAY 25 CENTS EACH for

THESE BACK COPIES

JANUARY 1930

MAY 1930

MARCH 1930

JUNE 1930

We will pay transportation charges if copies are received by October 25, 1930

THE ARCHITECTURAL RECORD

119 West 40th Street

New York City



It Is a GOOD Gas Range That Has This Red Wheel



TIFFIN Model CASH \$9975 (\$112.75 West of the Rockies)

The TIFFIN Model A new Magic Chef at a lower price

OMAN'S desire for a modern and beautiful kitchen won universal response to the beauty appeal of the MAGIC CHEF first announced a year ago. Now a new MAGIC CHEF... the TIFFIN... in a more compact and convenient size... has been created which makes MAGIC CHEF charm and style available to the builder at a substantially lower price.

The Tiffin Model of the MAGIC CHEF is delightfully modern in design, daintily harmonious in color scheme, charming and graceful as a piece of fine furniture, yet built so conveniently compact that it will fit the smaller kitchen and be in perfect keeping with its proportions.

Like the larger MAGIC CHEF models, the new Tiffin is beautifully enameled throughout. The exterior finish is in Old Ivory with Verd Antique marble trim. The handles are of cool, onyx green bakelite mounted on chromium finished fittings that will not tarnish. A new type folding cover conceals the cooking top, giving a smooth, clean appearance to the stove when not in use.

With all its attractive style the Tiffin is thor-

oughly serviceable and complete with the modern MAGIC CHEF features including the famous Lorain (Red Wheel) Oven Heat Regulator, the Insulated Oven and Broiler, the Safety-Type Valves, the reversible, rackless Broiler Pan and the roomy Service Drawer.

MAGIC CHEF is sold by dealers and gas companies wherever gas is available. It can also be used in non-gas-served territories with tank gas service. Write for full information.



Send name and address for free copy of booklet showing modern kitchens.



AMERICAN STOVE COMPANY... DEPT. B, 555 CHOUTEAU AVENUE, ST. LOUIS, MO.



REEVESHIRE CLEFT CHESTNUT FENCE

.... for the Suburban Home

HERE is adequate protection for the children and property, and a friendly barrier against intrusion . . . friendly, because the inter-spacing of the palings permits you to look beyond the boundaries in a neighborly fashion.

Cleft Chestnut Fencing is reasonably priced because it is machine made. Of live, split chestnut palings, spaced one inch apart, it has a quaint dignity and is particularly adapted to the suburban home.

Imported in rolls 16' long, in five heights, 10', 8', 6'6", 4'11" and 3'10". The 10' height is especially suitable for tennis court enclosures.

ROBERT C. REEVES CO.

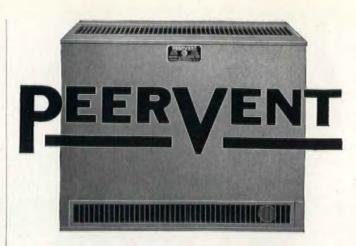
Established 1860

Importers of the celebrated line of French Provincial Woven Wood Fencing.

101 PARK AVENUE

NEW YORK, N. Y.





Heating and Ventilating Units



YOU can specify PeerVent Units with complete confidence. They are positively silent in operation, highly efficient, and dependable. Peerless Units built eighteen years ago are still giving perfect satisfaction. The latest PeerVent is improved throughout—better radiator, better motor, better fans, and better controls.

PEERLESS UNIT VENTILATION CO., INC.

Pioneers in Unit Ventilation Bridgeport, Connecticut

Selling Agents in Principal Cities from Coast to Coast

BATHROOM FURNISHINGS



Senate Office Building, Washington, D. C.—Parker equipped. Elliot Wood, architect, and Carrereand Hastings, associated.

CHARLES PARKER Co. Bathroom Fittings, Accessories, Mirrors, Medicine Cabinets, etc., include every type of fixture and accessory used in the bathroom, and architects may specify them with complete confidence (1) that all equipment desired will be available, (2) that they will be of the highest grade on all scores, (3) that the finish of each article will be perfect and (4) that the date of delivery will be met regardless of how large the order is.

Our Complete Catalogue is in Sweet's for 1930 Pages D4438-4453

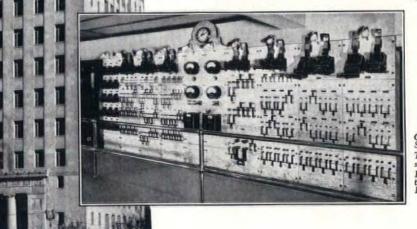
THE CHARLES PARKER COMPANY

ESTABLISHED 1832

Manufacturers of Bathroom Furnishings MERIDEN, CONN.

New York Office....CHARLES PARKER CO., Inc. 25 MURRAY STREET

for instance the Civil Courts Building



Civil Courts Building, St. Louis, Mo. The Plaza Commission, Inc., Architects E. A. Koeneman Elec-tric Co., St. Louis Elect. Cont.

The building of fine switchboards and cooperating in the engineering of them has been an (A) activity for nearly a half century, bringing to (A) unquestioned leadership in this work.

For instance, a great many government buildings have selected (A) equipment, a mark of approval important to commercial buildings in selecting theirs. Either live, deadface or remote control switchboards for all purposes are capably built by (A).

> Send for estimates or talk to an @ man near you. A country-wide service of experienced men await your call.

Frank Adam

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Buffalo, N.Y. Ralph E. Jones, 1890 Hertel Ave

CHICAGO, ILL. Major Equipment Co., 4603 Fullerton Ave.

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Kansas City, Mo. Robert Baker, 19 E. 14th St.

Los Angeles, Calif. E. Zinsmeyer, 1127 S. WallSt.

MEMPHIS, TENN. C. B. Rutledge, 203 Monroe Ave.

MINNEAPOLIS, MINN. Leo. H. Cooper, 422 Builders' Ex. Bldg.

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OMAHA, NEBR. B. J. Fleming 213 S. 12th St.

ORLANDO, FLA. F. W. Knoepple, 610 Richmond Ave.

PHILADELPHIA, PA. W. A. McAvoy, 244 North 10th St.

PITTSBURGH, PA. B. Frank Perry, Inc. 319 Third Ave.

St. Louis, Mo. O. H. Rottman 3650 Windsor Place

SAN FRANCISCO, CALIF. Lee Van Atta, 340 Fremont St.

SEATTLE, WASH. Elec. Eng. Sales Co., 2914 First Ave., S.

TULSA, OKLA. P. E. Ebersole, 214 S. Victor St.

TORONTO, CAN. Amalgamated Elec. Co., Ltd. Gen. Sales Office, 370 Pape Ave., 11 Charlotte St. VANCOUVER, CAN.

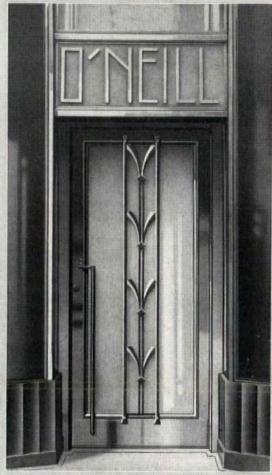
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METAL DOORS



O'NEILL LINEN SHOP, MICHIGAN SQUARE BLDG., CHICAGO Architects, Holabird and Root

A faithful interpretation of the architect's design is assured by Kawneer custom-built service. Doors can be furnished in bronze or aluminum alloy. Send for descriptive circular.

NILES, MICHIGAN, Subsidiary, BERKELEY, CALIFORNIA RUSTLESS METAL STORE FRONTS, WINDOWS and DOORS

ALSO ORNAMENTAL BRONZE AND IRON

CLASSIFIED DIRECTORY OF ADVERTISERS

Alphabetical Index to Advertisers, Page 192

After reviewing advertisements in this issue—use Sweet's Architectural Catalogues for 1930 for catalogue and specification information on the products of the most of the manufacturers.

Acid Proof Chemical Stoneware Knight, Maurice A.

Armstrong Cork & Insulation Co. Boston Acoustical Eng. Division of Housing Com-Guastavino, R., Co. Johns-Manville Corp. U. S. Gypsum Co.

Air Conditioner

American Blower Co. Buffalo Forge Co. Doherty-Brehm Co. Lewis Corporation

Air Washer Buffalo Forge Co.

Aluminum

Aluminum Co. of America

Arc Welding-Lincoln Electric Co.

Architectural Supplies
Higgins, Chas. M., & Co.

Artstone-Rackle, George, & Sons Co.

Asbestos-Johns-Manville Corporation

Basement, Windows—Steel
Detroit Steel Products Co. Truscon Steel Company

Bathroom Accessories Parker Charles Company

Beads-Corner Metal Milcor Steel Co. Truscon Steel Company Wheeling Corrugating Co.

Beams, Angles, Channels, Etc. Bethlehem Steel Co. Carnegie Steel Company Jones & Laughlin Steel Corp.

Belts-Dayton Rubber Mfg. Co.

Blackboards—Weber Costello Co.

Boilers-American Gas Products Co. American Gas Froducts Co.

American Radiator Co.
Dahlquist Mfg. Co.
Heggie-Simplex Boiler Co.
Pierce, Butler & Pierce Mfg. Co.
Smith, H. B., Company, The, Inc.
Titusville Iron Work Co. Wood Gar Engineering Co.

Bolts-Door-Corbin, P. & F.

Brass and Bronze

See "Ornamental Metal"

Brick-Finzer Bros. Clay Co.

Bridges-Steel-American Bridge Co. Bethlehem Steel Co.

Building Paper

Angier Corporation Natural Steel Fabric Co.

Buildings-Steel

Carnegie Steel Company Nat'l Assoc. of Flat Rolled Steel Mfrs.

Butts-Corbin, P. & F. Stanley Works

Cabinet Work-Hyde-Murphy Co.

Cabinets-Kitchen

Olean Metal Cabinet Works, Inc.

Cabinets-Medicine-Parker Charles Company

Cabinets-Toilet Paper

Victoria Paper Mills Co.

Casement Operators-Rixson, Oscar C., Company

Casements—Bayley, William, Co.
Crittall Casement Window Co.
Detroit Steel Products Co.
International Casement Co.
Mesker Bros. Iron Company
Truscon Steel Company

Cast Stone

Cast Stone Institute

Cellar Drainer Penberthy Injector Co.

Cement—Louisville Cement Company Medusa Portland Cement Co. Portland Cement Association Universal Atlas Cement Co.

Cement White Medusa Portland Cement Co.

Chain Sash—American Chain Co., Inc. Detroit Steel Products Co. Smith & Egge Mfg. Co.

Chairs-Marble, B. L., Chair Co.

Channels—Carnegie Steel Co.
Concrete Engineering Co.
Jones & Laughlin Steel Corp.

Church Memorials
American Seating Company

Clamps—Lock Joint Hyde-Murphy Co.

Cleaning Systems
Spencer Turbine Co.

Clocks, Electric Landis Eng. & Mfg. Co.

Columns, Porches, Etc.

Hartmann-Sanders Co.
Union Metal Mfg. Co.

Concrete Accelerator

Master Builders Co.
Solvay Sales Corp.

Concrete Construction—Reinforced

American Steel & Wire Company
Concrete Engineering Co.
Truscon Steel Company

Concrete Hardener

Master Builders Co.
Sonneborn, L., Sons, Incorporated
Solvay Sales Corp.

Concrete Surface Treatment
Master Builders Co.
Solvay Sales Corp.

Conduit for Underground Heating Pipes
Ric-wiL Company

Conduits

Fibre Conduit Co. Fretz-Moon Tube Co. Garland Mfg. Co.

Conduo-Base Co.

Cork Tile Flooring
Armstrong Cork Company, Floor Division
Congoleum-Nairn, Inc.

Corkboard

Armstrong Cork & Insulation Co.

Covering-Pipe and Boiler

Armstrong Cork & Insulation Co. Johns-Manville Corporation Ric-will Company

Dishwasher—Electric Conover Company

Door Closers—Corbin, P. & F. Norton Door Closer Co. Sargent & Company

Door and Window Frames
Andersen Frame Corp.

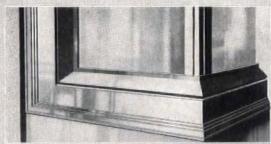
STORE FRONTS



QUIGLEY BUILDING, CHICAGO Architect, Jos. T. Fortin. Associate, David Adler

CUSTOM - BUILT

by a corps of skilled craftsmen. Every rolled, extruded or cast unit is carefully executed and assembled by this trained staff, assuring the architect a faithful rendering, in metal, of his design. Upon request we will send new free Book of Modern Store Front installations, also description and F. S. Details of "B" Construction.



DETAIL OF KAWNEER "B" CONSTRUCTION

Kawneer COMPANY

NILES, MICHIGAN, Subsidiary, BERKELEY, CALIFORNIA RUSTLESS METAL STORE FRONTS, WINDOWS and DOORS

ALSO ORNAMENTAL BRONZE AND IRON



FOUNTAINS OF BEAUTY!

R-S Drinking Fountains are in keeping with the lines of present day architecture-pleasing, clean in design-they add much to public buildings, hotels, schools and other institutions.

There are many types and styles of R-S Fountains; they are now available in colors and all have the R-S Vertico Slant feature. Let us give you full particulars. Write for catalog.

RUNDLE-SPENCE MFG. CO. 70 Fourth St. MILWAUKEE, WIS.



Doors—Baley, William, Company Compound & Pyrono Door Co. Dahlstrom Metallic Door Co. Detroit Steel Products Co. Hyde-Murphy Co. International Casement Co. Kawneer Company Kinnear Mfg. Co. Michaels Art Bronze Co. Peelle Company, The
Roddis Lumber & Veneer Co.
Sanymetal Products Co.
Security Fire Door Co.
Thorp Fire Proof Door Company United Metal Products Co. Weis, Henry, Mfg. Co. Wilson, J. G., Corp. Zouri Co., The

Drains-Josam Mfg. Co.

Drawing Inks Higgins, Chas. M., & Co.

Drives-Cog Belt Dayton Rubber & Mfg. Co.

Electric Switches Hart & Hegeman Mfg. Co.

Electrical Equipment Adam, Frank, Electric Co. American District Tel. Co. Bryant Electric Company Connecticut Tel. & Elec. Corp. Fibre Conduit Co. General Electric Company Graybar Electric Co. Hart & Hegeman Mfg, Co. Holtzer-Cabot Electric Co. Imperial Electric Co. Lincoln Electric Co. National Electric Light Association Westinghouse Electric & Mfg. Co.

Elevator Cars Tyler Company

Elevator Doors
Peelle Company, The
Security Fire Door Co.
Tyler Company
United Metal Products Co.

Elevator Inclosures

Tyler Company United Metal Products Co.

Otis Elevator Company Westinghouse Electric Elevator Co.

Du Pont de Nemours, E. I., & Co., Inc. Pratt & Lambert, Inc. U.S. Gutta Percha Paint Co.

Expanded Casings-Milcor Steel Co. **Expanded Metal**

Truscon Steel Company

Fence Post-Steel American Steel & Wire Co.

Fence-Woven Wood DuBois Fence & Garden Co., Inc. Reeves, Robert C., Co.

Fences—American Steel & Wire Co. Fiske, J. W., Iron Works

Finishing Lime Ohio Hydrate & Supply Co.

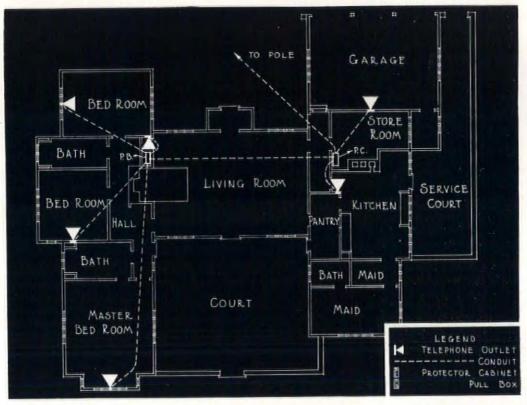
Fire Exit Devices Vonnegut Hardware Company

Fire Extinguishers
Pyrene Mfg. Co.

Fireplace Construction-Covert, H. W., Co. Fireproof Doors, Shutters and Windows

Compound & Pyrono Door Co. Dahlstrom Metallic Door Co. Detroit Steel Products Co. Kawneer Company
Mesker Bros. Iron Company
Peelle Company, The
Thorp Fire Proof Door Company Truscon Steel Company United Metal Products Co.

The modern Home provides for both Present and Future Telephone needs



Complete telephone convenience is provided in the residence of Dr. George W. Hawley, Bridgeport, Connecticut, by six telephone outlets, including one in the garage. The telephone wiring is carried in conduit hidden in the walls and floors. Fred C. Johnson, Architect, Bridgeport.

Provision for complete telephone convenience is an important and attractive feature in the design of the modern residence. Telephones through out the house, placed where they will save steps and time, greatly increase the comfort and livability of the home, and help to simplify household management.

Planning in advance for the telephone arrangements has many advantages. It provides conduit, concealed within the walls and floors during construction, and telephone outlets in all the important rooms. This gives improved appearance, guards against certain types of service interruptions and



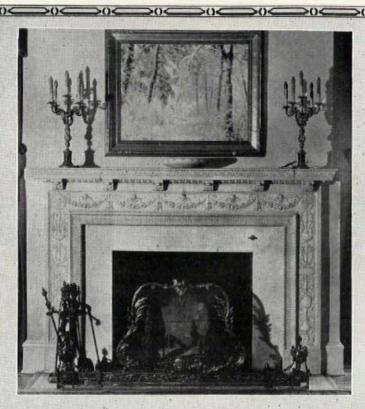
provides a flexibility of telephone service that is most desirable.

Although at first only such outlets as may be needed immediately are used, the others are always available for possible rearrangement of the service to take care of the growing requirements of the family.

Your local Bell Company

will gladly help you plan the telephone arrangements for new and remodeled residences. It will also arrange for conferences to explain to your clients the telephone equipment which serves different household needs. No charge is made for this advisory service. Just call the Business Office.





Art Stone Mantelpieces

In All Periods

Not only beauty of line but also the spirit of execution is reproduced in our Art Stone

Also Compo Ornaments For Woodwork

Jacobson Mantel & Ornament Company

322 East 44th Street, New York >0<=>0<=>0<

ARTHUR P. WINDOLPH

Fireproofing

See "Concrete Construction," "Covering, Pipe and
Boiler," "Fireproof Doors, Shutters and Windows," "Lath-Metal,"

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Cheney Company

Floor Clips Bull Dog Floor Clip Co.

Floor Covering
Congoleum-Nairn, Inc.
Stedman Rubber Flooring Company
Wright Rubber Products Co.

Floor Hardeners

Master Builders Co. Sonneborn, L., Sons, Incorporated

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Carnegie Steel Co.
Floor Plates—Alan Wood Steel Co.

Alan Wood Steel Co. Armstrong Cork Co. (Flooring Division) Carter Bloxonend Flooring Co. Cellized Oak Flooring Co. Congoleum-Nairn, Inc. Master Builders Co. Norton Company Oak Flooring Mirs. Assoc. of U. S. Stedman Rubber Flooring Company Structural Gypsum Corp. Wright Rubber Products Co.

Flooring—Composition
Congoleum-Nairn, Inc.
Flooring—Grid
Snead & Company
Flooring—Wood Block—Builtup
Carter Bloxonend Flooring Co.
Flooring—Wood Steel

Floors—Fireproof—Alan Wood Steel Co. Structural Gypsum Corp.

Footlights—Kliegl Bros. Fountains—Drinking

Century Brass Works, Inc. Rundle-Spence Mfg. Co. Taylor, Halsey W.

Furniture—American Seating Co. Marble, B. L., Chair Co. Garage Hardware—Corbin, P. & F.

Garden Furniture and Ornaments

Hartmann-Sanders Company Gas Boilers—American Gas Products Co. American Radiator Co. Dahlquist Mfg. Co.

Gas Ranges—American Stove Company Glass—Window

Adamston Flat Glass Co. American Window Glass Co. Pittsburgh Plate Glass Co. Glass Wire—See Wire Glass

Granite—Bates Bros. Seam Face Granite, Inc. Fletcher, H. E. Co. National Bldg. Granite Quarries Assn.

Greenhouses-King Construction Co. Highton & Sons, Wm., Division Hart & Cooley Mfg. Co.

Grids—Flooring
Snead & Company
Grilles—General Bronze Corp.
Wickwire-Spencer Steel Co.
Gypsum Plaster—See Plaster, Gypsum

Gypsum Slabs

Structural Gypsum Corp. U. S. Gypsum Co.

-Garment Extension Hangers-Extension Garment Hanger Co.

Hardware—Corbin, P. & F.

Norwalk Lock Co.
Rixson, Oscar C., Company
Russell & Erwin Mfg. Co.
Sargent & Company Soss Manufacturing Company Stanley Works

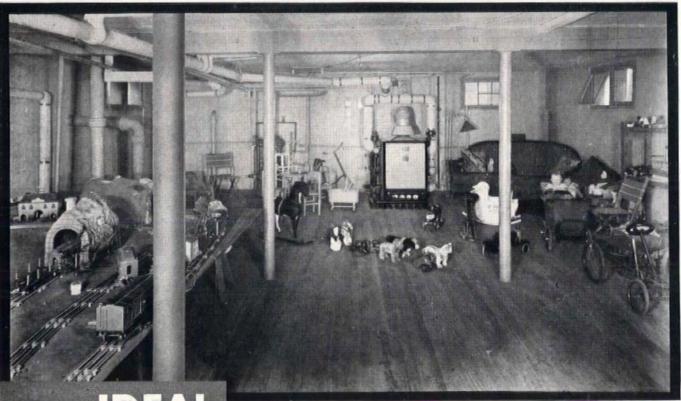
Vonnegut Hardware Company
Weis, Henry, Mfg. Co.
Yale & Towne Mfg. Co.
Heat Insulation—Johns-Manville Corporation
Ric-wiL Company

Heat Regulator Oven-American Stove Company



When you plan a modern home . . .

BE SURE THE HEATING PLANT IS MODERN TOO



IDEAL GAS BOILERS

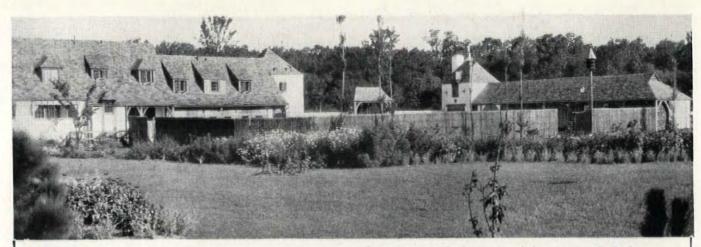
- Five years from now will your homes be as modern as they are today? Will the heating plants be the modern plants of that day?
- Ideal Gas Boilers are 100% automatic and will be as modern five years from today as they are now.
- Gas rates for house heating are being steadily reduced which is one of the reasons for the tremendous popularity and growth of automatic heating that is 100% automatic.
- That is why so many successful architects insist that the homes they plan be made really modern with Ideal Gas Boilers.

AMERICAN RADIATOR COMPANY

40 West 40th Street, New York City

DIVISION OF

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION



More and more—DUBOIS is being made part of the Architectural Scheme

To assure permanent satisfaction to your clients, please specify Dubois by name. For sizes and erection data, turn to "Sweet's". A new album of large plates, illustrating many applications of Dubois, is ready for distribution to architects and land-scape architects upon request, without cost.

The interest and harmony of this grouping has been accentuated by making Dubois part of the architectural scheme. Architects are now including Dubois in their specifications for its value in producing a pleasing ensemble.

Used for centuries in France, Dubois fits perfectly with architecture of English, Spanish and Colonial origin as well as with its native French Provincial setting.

ORIGINAL DUBOIS U.S. PAT. OFF.

Woven Wood Fence

Made in France

DUBOIS FENCE & GARDEN CO., INC.

101 PARK AVENUE, NEW YORK, N. Y.

Heating Apparatus

Aerofin Corporation
American Blower Co.
American Gas Products Corp.
American Radiator Company
Buffalo Forge Co.
Dunham, C. A., Company
Heggie-Simplex Boiler Co.
Johnson, S. T., Co.
Marsh, J. P. & Co.
Nash Engineering Company
Nelson, Herman, Corp.
Peerless Unit Ventilation Co., Inc.
Pierce, Butler & Pierce Mfg. Co.
Smith, H. B., Company
Sturtevant, B. F., Co.
Titusville Iron Works Co.
Wood Gar Engineering Co.

Hinges—Gravity
Sanymetal Products Co.

Hinges—Invisible
Soss Manufacturing Company

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In the bathroom indestructible steel medicine cabinets, steel tile, radiator enclosures, clothes hampers and shower stalls, lend an atmosphere of beauty and cleanliness.



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THE Cleveland Club, Cleveland, O., occupies a prominent position on Carnegie Ave., not far from the University grounds. The architects are Frank B. Meade and James Hamilton, and Thompson-Starrett Co., Inc., were the contractors. The upper trim, starting with the balustrade at the fourth floor, is all RACKLE ARTSTONE and the clean, sharp, accurate outlines secured by its use in the upper stories, are an unusually happy illustration of the way in which this practical and beautiful product is widely used to enhance the striking effect of fine design.

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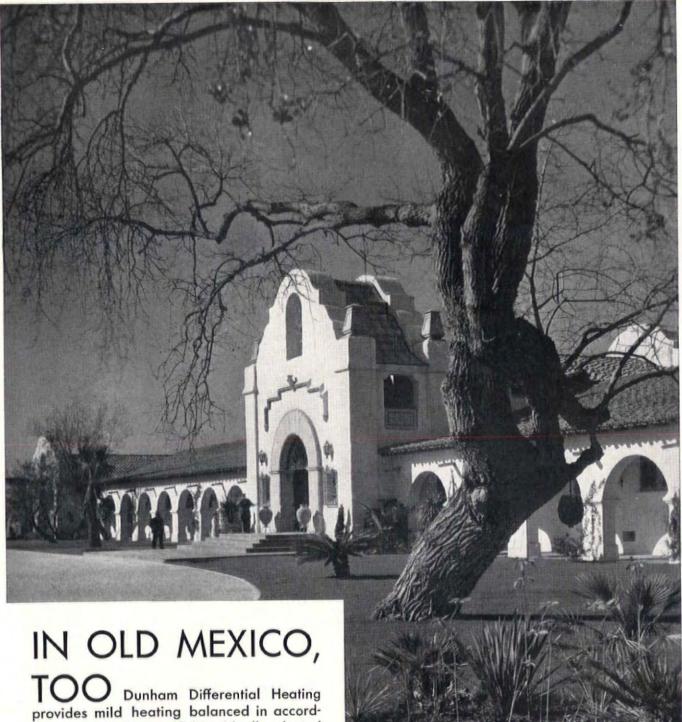
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ance with weather conditions, ideally adapted to Pacific Coast requirements.

The Differential system control of steam temperatures gives ample heat for the chill of evening and early morning hours, yet there is no wasteful overheating during the balmy hours of midday. It cuts fuel costs 25 to 40%. C. A. Dunham Co., Dunham Building, 450 E. Ohio St., Chicago, III. Western Sales Offices: San Francisco, Los Angeles, Portland, Spokane, El Paso, Salt Lake City, Seattle.

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A modern installation showing versatility of Olean Standard Units.

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Reveals New and Exclusive Features in Style and Construction

RACEFUL, streamline design and exclusively patented features of construction are attracting attention of architects and builders to the new line of Olean Steel Cabinetry, now being shown.

Olean Quality is making steel the style in kitchen cabinetry. The exclusive and patented features in design make possible a type of rigid construction with narrow styles and rails that give an expanse of glass in doors, possible by no other method.

New, semi-concealed hinges—adjustable shelf supports—special drawer locks—and distinctive hardware, characterize the line.

Finishes by special, scientific oven-baking process will not crack, discolor or peel.

Compliance with architects' specifications guaranteed.

Complete specification sheets gladly sent on request.



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Eighty Telephone Buildings Have Dialed Armstrong's Corkboard

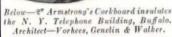
for perfect connection to top-floor comfort and permanent fuel economy



Left—The entire roof area of the Mountain States Tel. & Tel. Co. building, Deneer, is insulated with Armstrong's Corkboard; top-floor offices are comfortable in any kind of weather. Architect—Wm. N. Bowman Co., Deneer.

Below—On the roof of Mountain States
Tel. & Tel. Co. building, Architect—
Wm, N. Bowman Co., Deneer; contractor—C. E. Walker Constr. Co.,
Denver; roofing contractor—Western
Elaterite Roofing Co., Denver.

Below—Armstrony's Corkboard insulates the Southwestern Bell Telephone Co. roof, Kansas City, Mo. Architect—Hoit, Price & Barnes, Kansas City; associate architect —I. R. Timlin, St. Louis.





Some of the 80

Here is a partial list of the telephone buildings that have insured top-floor comfort and fuel economy with Armstrong's Corkboard Insulation on the roof.

New York Telephone Co., N. Y. C. —(3 buildings)

Portland Telephone Building, Portland, Me.

Telephone Exchange Building, Boston, Mass.

New England Tel. & Tel. Co., Boston, Mass.—(Stadium Exchange)

Bell Telephone Bldg., Athens, Ga. So. Western Bell Telephone Bldg., St. Louis, Mo.

Indiana Bell Tel. Co., Marion, Ind. Cumberland Tel. Co., Louisville, Ky. So. Western Bell Telephone Bldg., Amarillo, Texas

Bell Tel. Co., Montreal, Canada Wisconsin Tel. Co., Kenosha, Wis. Michigan Bell Telephone Co., Ann Arbor, Mich.

Southern Bell Tel. & Tel. Co., Chattanooga, Tenn.

Southern Bell Tel. & Tel. Co., Savannah, Ga.

So. Western Bell Tel. Co., Dallas, Texas

Bell Tel. Co., Philadelphia, Pa.— (3 buildings)

So. Western Bell Telephone Bldg., Oklahoma City, Okla.

Southern Bell Telephone Bldg., Greensboro, N. C.

Northwestern Bell Tel. Co., Minneapolis, Minn.

Southern Bell Telephone Co., LaPlace, La.

New England Tel. & Tel. Co., Dover, N. H.

Michigan Bell Tel. Co., Detroit, Mich.—(4 buildings)

Ohio Bell Tel. Co., Columbus, Ohio —(2 buildings)

Armstrong Cork & Insulation Co., 901 Concord St., Lancaster, Pa.

Armstrong's Corkboard Insulation

for the roof of every building

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the finest and most modern department store. Beautiful and efficient lighting . . . a scenic railway (Otis Escalators) to relieve elevator congestion . . . all electric wiring systems protected by Garland Conduits,

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Stain—Wood Preserving Cabot, Samuel, Inc.

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American Stainless Steel Co.

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Steel—Forms
Concrete Engineering Co.

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Stone—Granite
Bates Bros. Seam Face Granite, Inc.
National Bldg. Granite Quarries Association

Stone—Limestone Indiana Limestone Company Victor Oolitic Stone Co.

Stone—Marble Georgia Marble Co. Vermont Marble Co.

Stone Ware, Chemical Knight, Maurice A.

Store Front Construction
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Kawneer Company, The
Michaels Art Bronze Co.
Tyler Company
Zouri Company, The

Stoves-American Stove Company

Structural Steel

Bethlehem Steel Co.
Carnegie Steel Co.
Jones & Laughlin Steel Corp.

Telephone Service Arrangements
American Telephone & Telegraph Co.

Terra Cotta
Federal Seaboard Terra Cotta Corp.
National Terra Cotta Society
Northwestern Terra Cotta Co.

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Tile—Floor and Wall
Norton Company
Pardee C. Works
Robertson Art Tile Co.

Tile—Hollow Building
National Fire Proofing Corp.

Tile—Roofing
Ludowici-Celadon Co.
Stedman Rubber Flooring Company

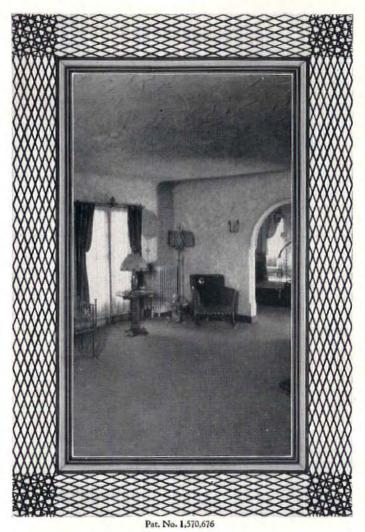
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Stedman Rubber Flooring Company
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Tree Surgeons-Davey Tree Expert Co.

This Metal Trim Appeals Instantly

. . . to Architect . . . Builder . . . Owner



The metal molding makes a precise, neat trim around window and door openings. It may be finished in the

same tone as the walls . . . giving a harmonious finish and adding a distinctive touch to the room. The expanded metal wings key the plaster right up to the casing . . . and the patented *Milcor* lock and clip anchors the assembly to the wood frame so

it's there to stay. The *Milcor* one-piece mitre makes a perfect corner joint. Architects appreciate the beauty and

permanence of *Milcor* Expansion Metal Casing . . . Builders like its ease of application . . . and owners enthuse over the fact that here is a metal trim from which the plaster will not pull away. Send for a sample section . . . and complete information.



Milcor Expansion Corner Bead assures perfectly true lines and curves as well as permanent beauty. The wings of expanded metal key the plaster right up to the bead. No hunting for nail holes . . . erection is fast and low in cost. Milcor corners will stand unusual abuse.

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Save with Steel

Copperalloy Steel



Scratching in and doubling up can be done from one scaffold with Mileor Stay-Rib Metal Lath. Perfect plastering can be done, with a saving in labor and material. All painted Stay-Rib is heattreated and re-annealed after forming.



Whatever style you would build—Colonial, or English, or French Provincial—floars of oak agree exactly with the rooms and their furnishings. Photograph by courtesy of Colonial Village, Wayne, Pa.

Where fine furnishings must be considered . . . specify OAK FLOORS

IN MOST of the homes in Colonial Village good taste dictated the use of oak for floors. The burnished russets and the golden browns of this dependable wood would be the most handsome setting for the quaint old ladder-backed chairs, pie-crust tables and elegant high-boys which would undoubtedly be among the furnishings of the future residents.

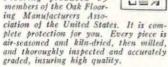
And yet, even had this been the "French Village," the "English Village" or one of any other style, its wise designers would probably have chosen floors of oak. For, centuries of building history have proved to architects and decorators that oak is not only the most flattering background for all styles of furnishings but also the most durable and economical material for floors. In point of view of good design, original cost and future upkeep, it is the soundest sort of specification that an architect can make. . . . Oak Flooring Manufacturers Association of the United States, 1839 Sterick Building, Memphis, Tennessee.



Oak Flooring advertising is

Garden, House Beautiful, Good Housekeeping, Better Homes and Gardens, The Literary Digest, Ladies' Home Journal and Small Home.

THIS MASTER TRADE-MARK is stamped on the under side of all Oak Flooring produced by members of the Oak Floor-



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Lignophol is not a mere surface coating, but a through-and-through penetrant that will not wear off or evaporate. One treatment lasts for years, and any workman can quickly apply it with a longhandled brush.

Make use of Sonneborn consulting service. We co-operate with your contractor and give him the benefit of our 25 years' experience. This co-operation helps your contractor to come up to your exacting specifications while keeping the work within bounds of economy. Every Sonneborn product is guaranteed to do a good job.

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—the original concrete floor hardener and dustproofer.

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-For waterproofing mass concrete, stucco and mortars.

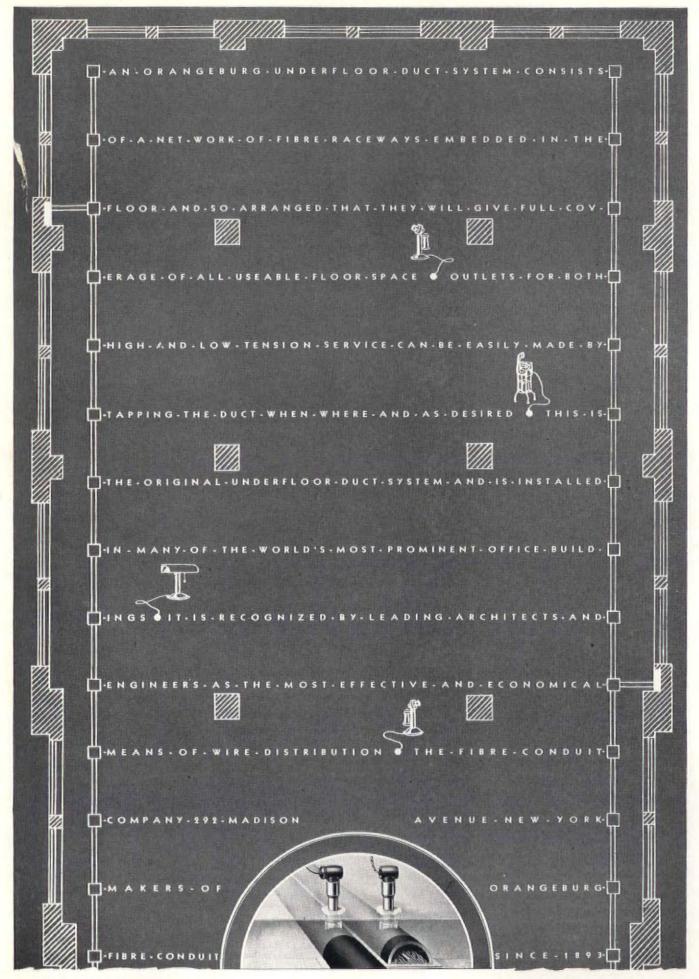
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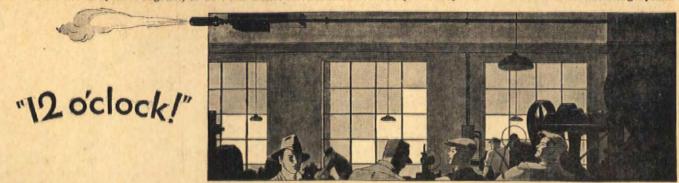
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