THE AMERICAN ARCHITECT AND THE ARCHITECTURAL REVIEW

THIRTY-NINTH ANNUAL EXHIBITION OF THE ARCHITECTURAL LEAGUE OF NEW YORK, REVIEWED AND ILLUSTRATED ❦ INTERIOR ARCHITECTURE THE LAW AS TO ARCHITECTURE & BEAUX-ARTS INSTITUTE OF DESIGN ❦ AIR LEAKAGE THROUGH THE OPENINGS IN BUILDINGS ❦ EDITORIAL COMMENT

VOLUME CXXV FEBRUARY 13, 1924 NUMBER 2439

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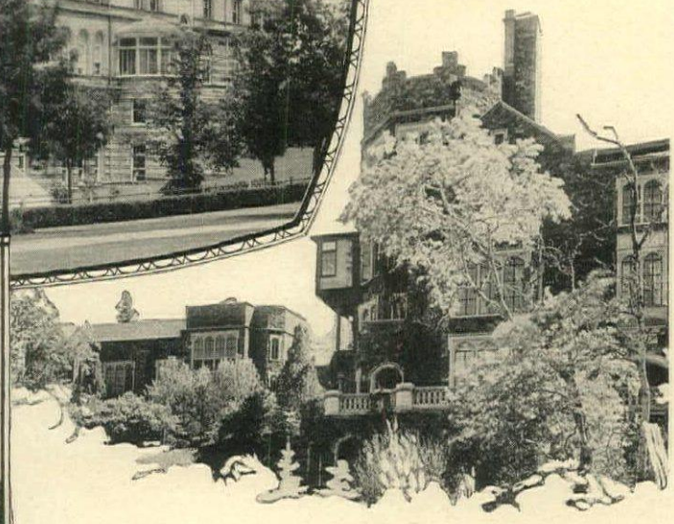
Antlers Hotel, Colorado Springs
Architect, Frederick J. Sterner
E. R. Joyce, Original Plumbing Contractor
Jardine & Knight, Contractors on recent plumbing renovations and alterations

Glen Eyrie, Colorado Springs, Former home of Gen. Palmer, builder of Denver & Rio Grande R. R.
Architect, Frederick J. Sterner
Plumber, J. C. St. John Plumbing & Heating Company



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Architect, C. D. Hill Co.

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THE AMERICAN ARCHITECT
THE ARCHITECTURAL REVIEW

CONTENTS

VOL. CXXV WEDNESDAY, FEBRUARY 13, 1924 NUMBER 2439

Plates

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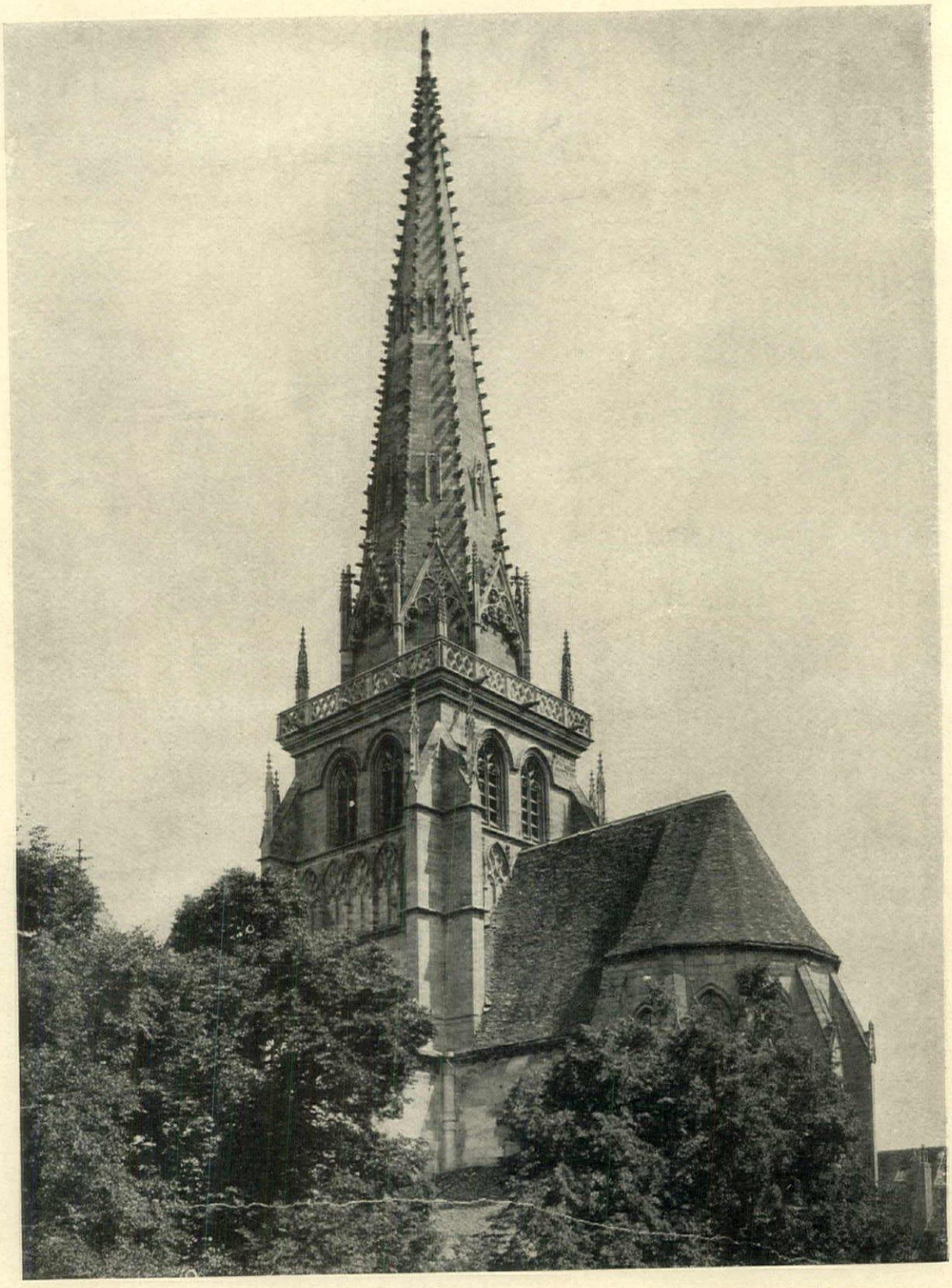


THE CATHEDRAL, AUTUN

THE AMERICAN ARCHITECT
The ARCHITECTURAL REVIEW

VOL. CXXV WEDNESDAY, FEBRUARY 13, 1924 NUMBER 2439

SPRING

OVERDOOR PANEL IN ORIENTAL GALLERY OF CHAUNCEY McCORMICK, CHICAGO, ILL.
ANTHONY DE FRANCISCI, SCULPTOR—PHILIP L. GOODWIN, ARCHITECT

THIRTY-NINTH ANNUAL EXHIBITION, THE ARCHITECTURAL LEAGUE *of* NEW YORK

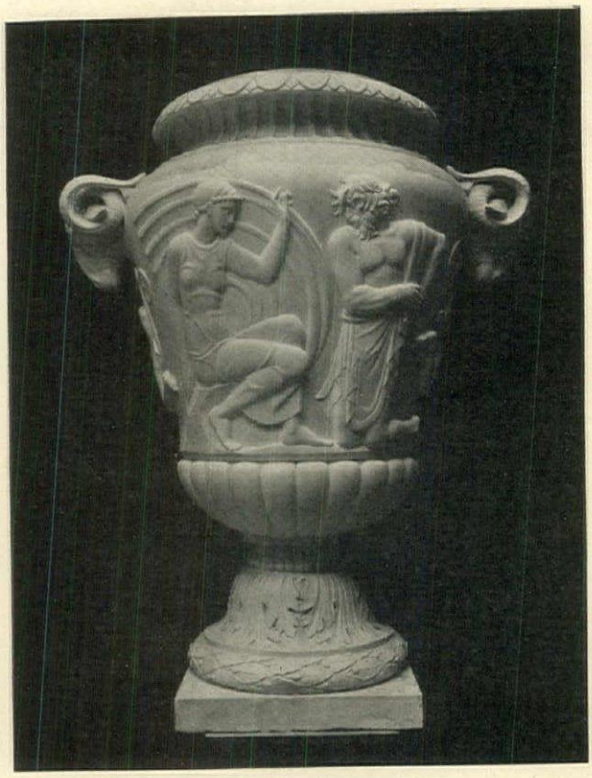
FOR a smoothly working organization, one that functions efficiently in every way, let us consider The Architectural League of New York. No obstacles, no matter how serious, appear to daunt the men of this organization. It is but to recall history to refer to the fire that wiped out in two hours on the opening date an exhibition that it had taken a month of painstaking effort to arrange. It was but a matter of a few days' work, however, to assemble a new, if smaller, exhibition and thus maintain unbroken a series of presentations of architectural work, each one very much to be commended.

Criticism has been made of other art organizations that, aside from a spasmodic exhibition once or twice a year, they have been moribund the rest of the time. This may not be truthfully said of the League. Exhibitions are not its only constructive work. Its monthly meetings and dinners each have a well defined purpose. Things are accomplished. Public opinion as to architecture properly directed and the big task that the League has set itself, the encouragement of industrial art and the promotion of a better craftsmanship, is always being consistently accomplished. It is well to stress this point, if for no other reason than to combat an idea that the sole purpose of the League is to hold these annual exhibitions.

Even success may, in a certain sense, become monotonous. Success marks this year's exhibition in the same brilliant manner that it has marked those of the last ten years. With succeeding years, the interpretation of architectural exhibitions becomes broader. No longer are they planned and executed as something of purely professional interest. Rightfully, it seems to us, exhibitions are now more largely a motive for popular education in architecture. This value is served by the fact that when the man on the street has visited an architectural exhibition he has received in part a liberal education as to what properly constitutes civic pride. He learns, to use a homely expression, to stand on his hind legs and look through his eyes; to elevate his vision from the sordid level of usual observation and to gaze with appreciation on the good architectural expression that is everywhere to be

found. Undoubtedly, there is a very great artistic impulse in these annual showings of architecture.

It is unfortunate that there is not available in the largest city of the country a building adequate for exhibition purposes. We need an art center and there is no other civic need just now of greater importance. The Vanderbilt Galleries, where League exhibitions have been held for many years, have a certain atmosphere of aristocratic exclusiveness. They do not attract, and seem to forbid the presence of a large part of the city's population that needs, and badly, to learn the lessons that these exhibitions teach.



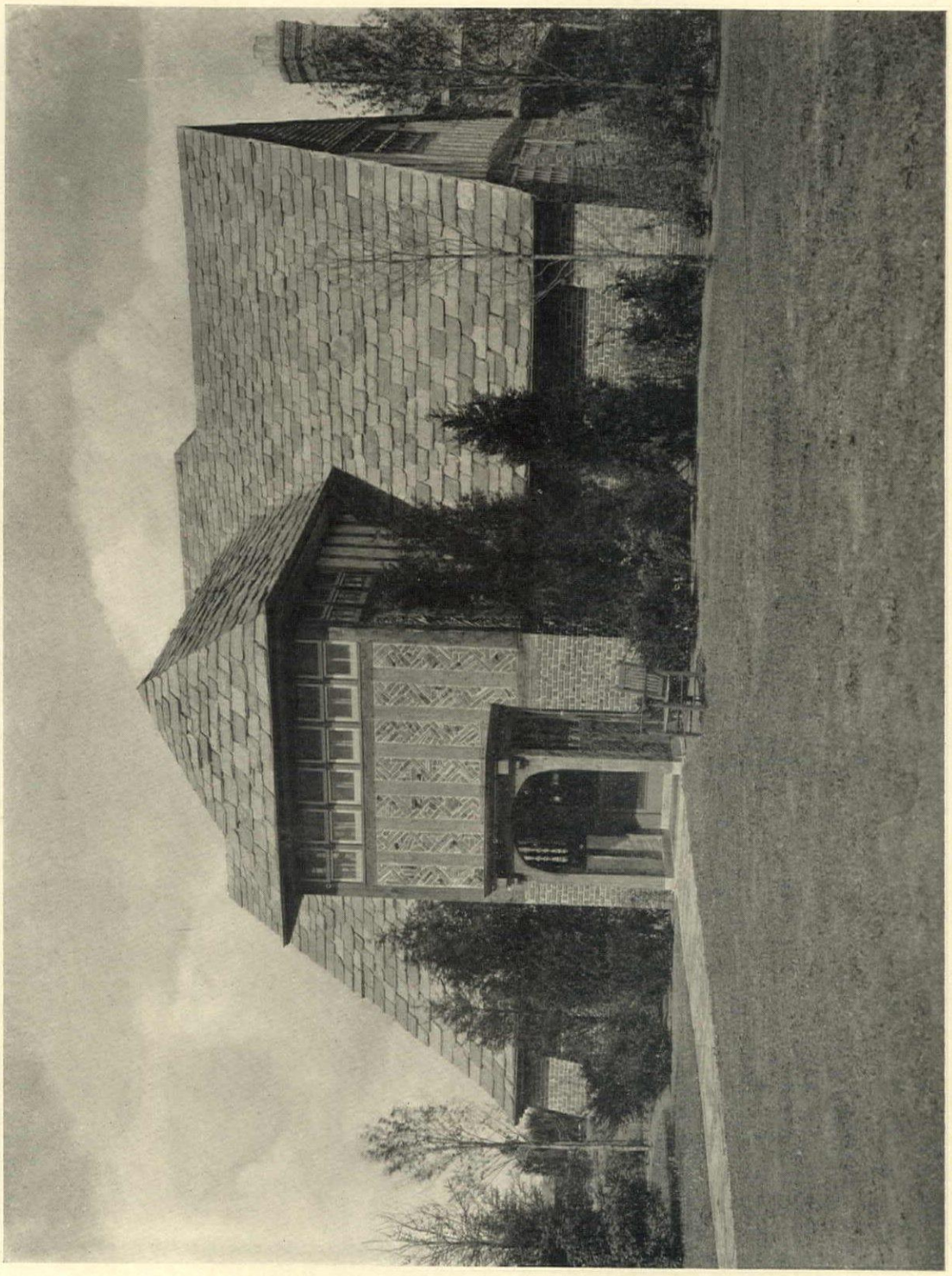
MIRANDA AND CALIBAN
VASE FOR A GARDEN AT SYOSSET, L. I., N. Y.
JOHN GREGORY, SCULPTOR

The exhibition that was held at the Metropolitan Museum of Art three years ago, when the Vanderbilt Galleries were destroyed by fire, attracted thousands that would never have gone over to the exclusive West side to view the same exhibition. The exhibition of municipal art, held during the recent "Silver Jubilee" of New York, was also thronged by people who had an opportunity to study, to the very best advantage, municipal architecture and the exhibits that showed the city's growth and development. If we are to prove to the masses that art is not a hobby of the rich, but vitally a necessity of

OBVERSE

REVERSE

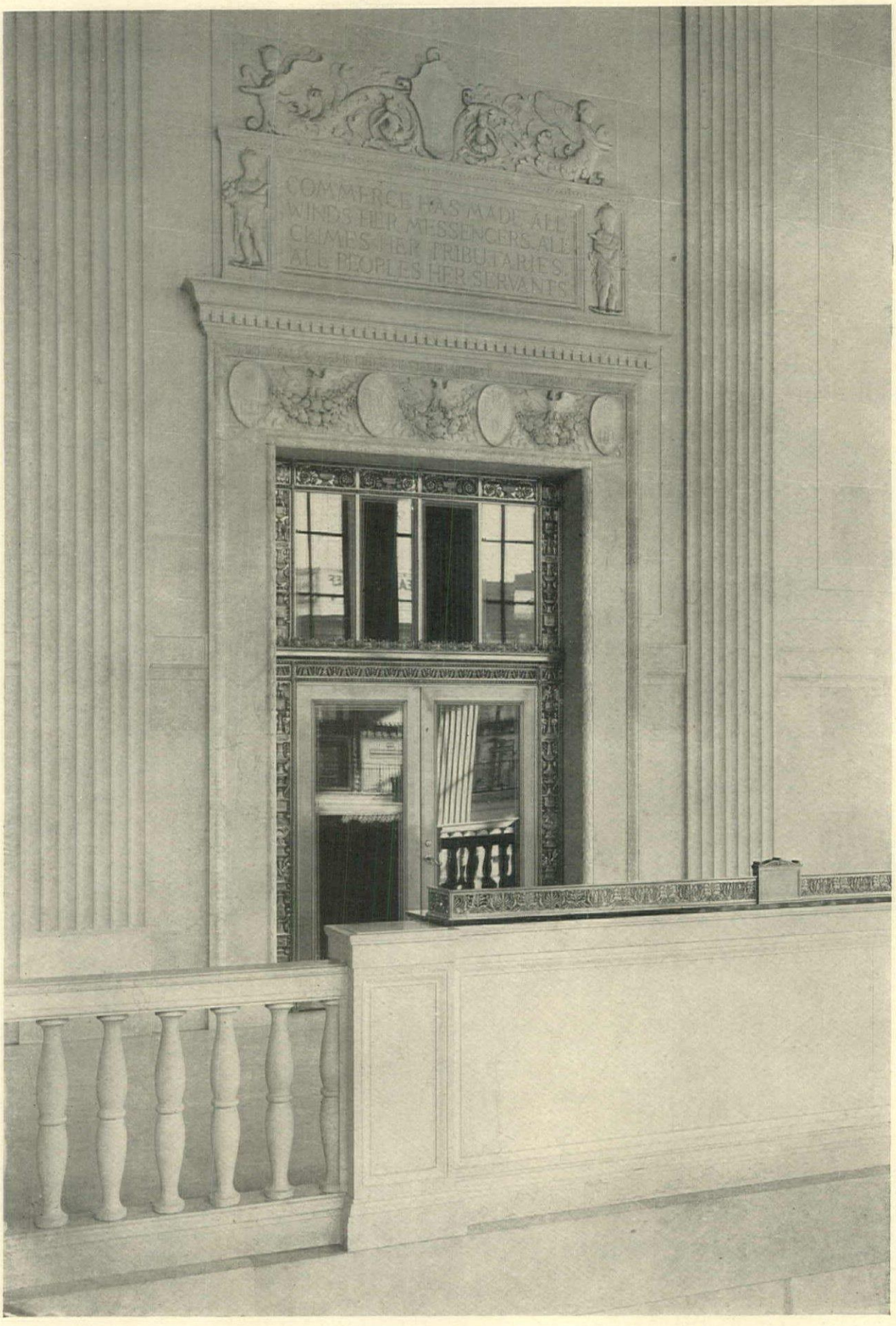
MICHAEL FRIEDSAM ART IN INDUSTRY MEDAL
ROBERT AITKEN, N. A., SCULPTOR
AWARDED TO HENRI CREANGE



COUNTRY CLUB OF DETROIT

ALBERT KAHN, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

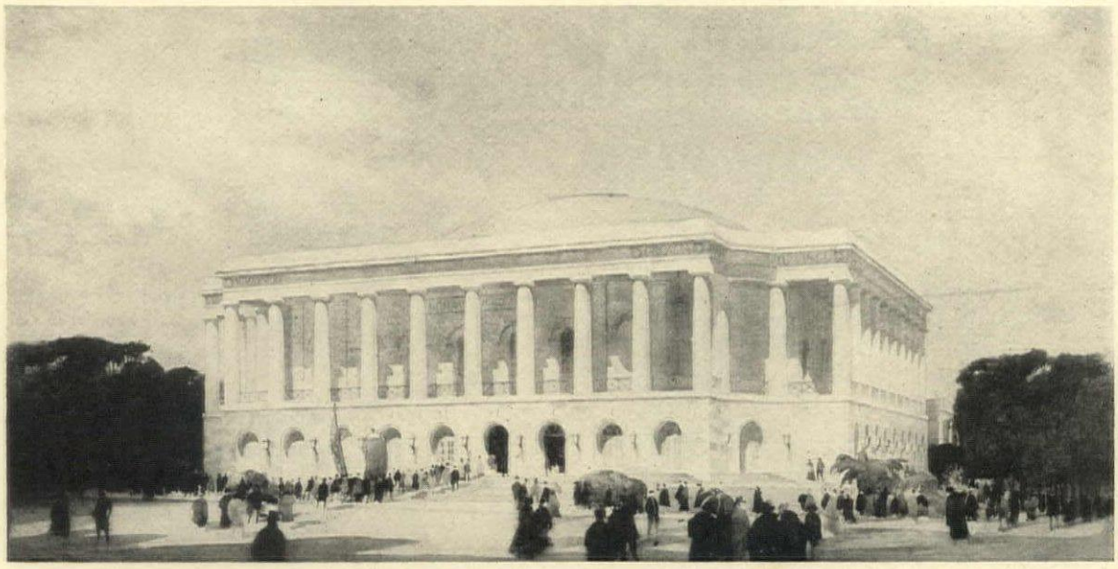


DETAIL OF DOORWAY

FIRST NATIONAL BANK BUILDING, DETROIT, MICH.

ALBERT KAHN, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



AUDITORIUM, MACON, GA.
EGERTON SWARTWOUT, ARCHITECT—DENNIS & DENNIS, ASSOCIATED

every-day life, we shall have to make our exhibitions accessible to all the people and never surround them with an atmosphere of exclusiveness. It is for these reasons that the early selection of an art center is of great importance. There is a pressing duty on the part of architects to labor toward this end.

In watching this exhibition throughout its various stages toward completion, certain special features have been observed, some of which are covered by the following notes.

* * *

Just what zoning has done for New York is splendidly shown at this League exhibition. The future possibilities point to a skyline as fine in silhouette as is the famous view from the lower bay. Neither influence of sordid interest nor political power has served to make inroads on a zoning law that was properly framed at the outset. The monotony that so strongly marked certain sections of rapid development is now giving place to a diversity that is beautiful. The exhibition presents in all its phases the effect of a correctly maintained zoning law and is an object lesson of great value to every municipality in the country.

* * *

Eighteen million automobiles were made in this country during 1923—enough, it is said, to give half of our population a ride at one time. Many have claimed that these figures portend a lessening of the true spirit of home life, and that the prevalence of the motor car prevents the building of houses, large and small. This may or may not be true, but it is not to be noticed in this exhibition. There never has been a more satisfactory showing of the suburban house of all types from the unpretentious home of the average commuter to the "estate" of the man whose war profits seek some permanent investment. For ten years the development of our domestic architecture has been one of steady and satisfactory growth. The artistic use of mate-

GREAT DANE
EDWARD FIELD SANFORD, JR., SCULPTOR

DETAIL OF WING

HOUSE OF CHARLES SMITHERS, WHITE PLAINS, N. Y.

DONN BARBER, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

rials is, for lack of a better simile, like the use of the palette colors by an artist painter. We use materials in this country with the finest sense of their possibilities. Houses as they are designed and planned today, undoubtedly have a strong influence on the mental development of those who live in them, and they are therefore clearly an index of a better culture and a finer sense of civic spirit.

* * *

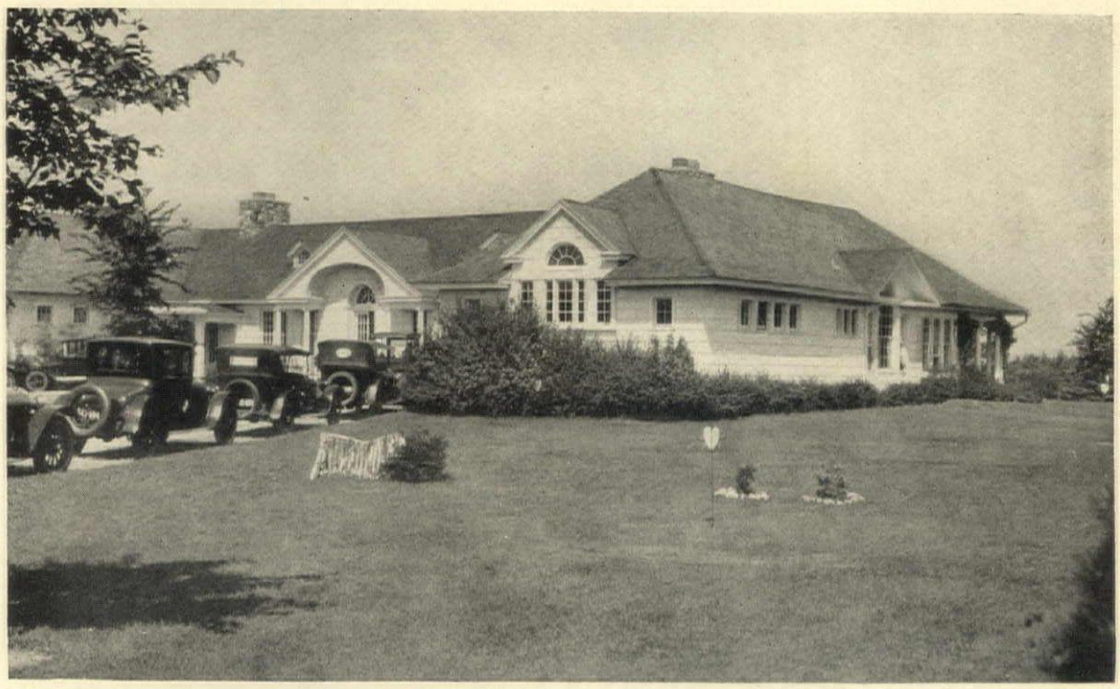
It has taken the hard-headed business man a long time to learn that good architecture is a fluid commercial asset. In Shakespeare's time, good wine needed no bush, and in Emerson's, the mousetrap man did not need to advertise. But today, if in the swirl of strong competition the manufacturer would find a market for his product, he must let the world see that it comes out of a building or a group of buildings that is up-to-date in plan and architectural design. The battle to secure from a one-time obdurate client an appropriation to insure certain aesthetic additions to a purely utilitarian design, has been won. The walls of this exhibition proclaim that fact.

* * *

The golf course architect is abroad in the land and as a result, there have been important developments of large tracts. These erstwhile barren fields are now transformed into undulating spaces, with their putting greens and hazards all placed to best advantage. Dominating the whole is the club house, a social center where members meet to find recreation and good health. It's a fine sign of our progression to note these strong tendencies toward a life out-of-doors whenever possible and it is gratifying to see that the surroundings are planned on lines of good architecture and pictorial composition.

* * *

The Avery prize awarded annually to sculptors under thirty years of age was given to Brenda Putnam for her fountain designed for a formal garden. Chester Beach's "Glint of the Sea," a bronze fountain with a central decoration of figure and dolphins, received the gold medal in sculpture. The Kensington Company received the gold medal for craftsmanship, partly for the excellence of its present exhibition and also for past general performances.



COUNTRY CLUB HOUSE, NORFOLK, CONN.

TAYLOR & LEVI, ARCHITECTS

The Michael Friedsam prize awarded for conspicuous service to the cause of the industrial arts, went to Henri Creange of Cheney Brothers. Mr. Creange was honored principally for the fine work he has done in textiles and pottery.

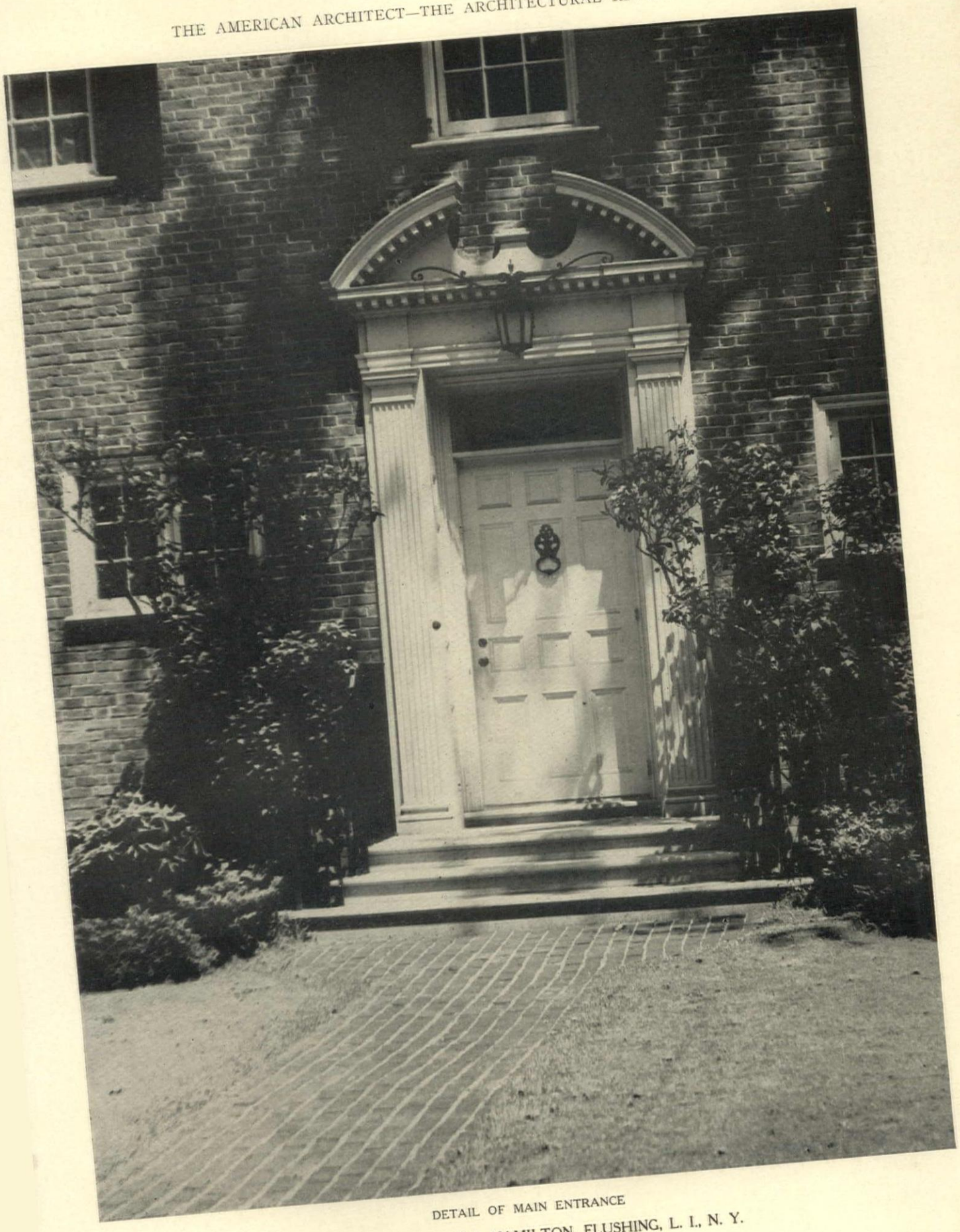
The awards in architecture, landscape gardening and painting were this year withheld.

The opening ceremonies of this exhibition were, as usual, full of pageantry. The feature on this occasion was a review of the League's dramatic activities, entitled "The Passing Years." These were represented by a medieval masque, "The

HOUSE OF WILLIAM J. HAMILTON, FLUSHING, L. I., N. Y.

ROGER H. BULLARD, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



DETAIL OF MAIN ENTRANCE

HOUSE OF WILLIAM J. HAMILTON, FLUSHING, L. I., N. Y.

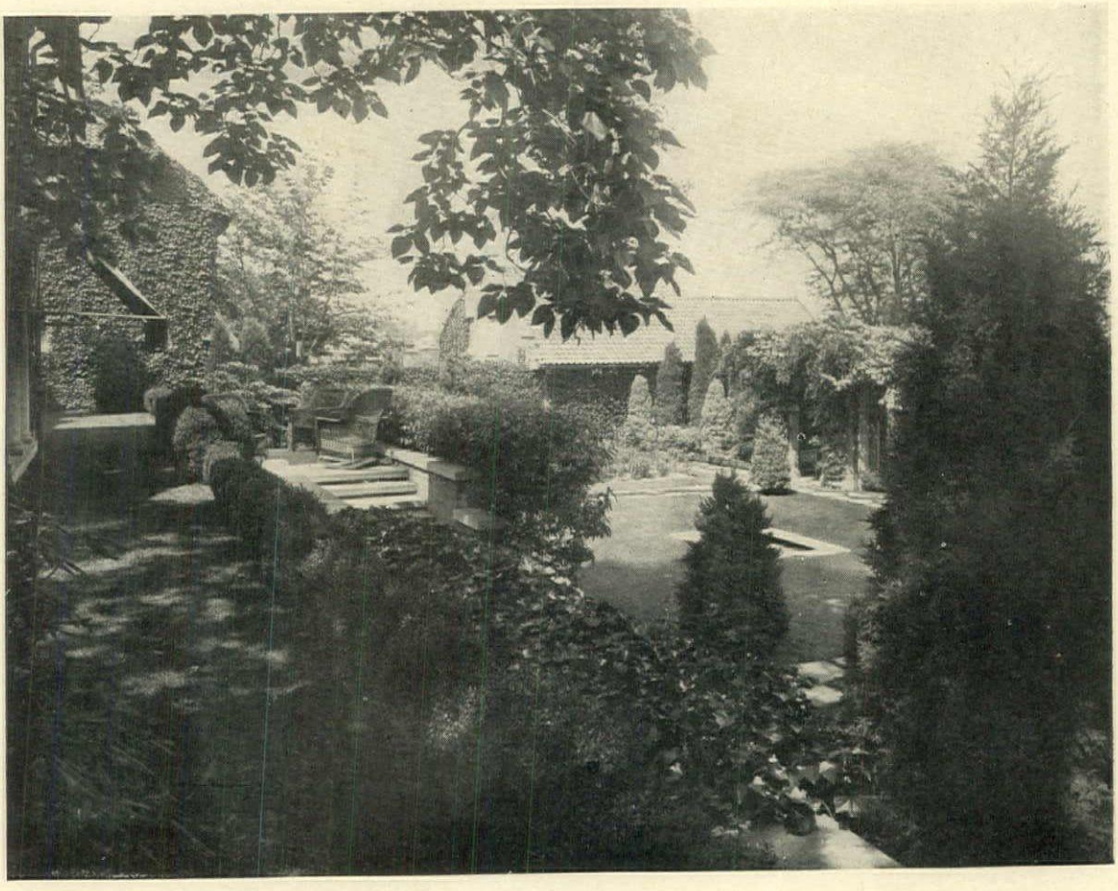
ROGER H. BULLARD, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

Festival of Fools," as of 1917; "David in the Lion's Den," a Babylonian masque, 1920; "The Princess Who Never Smiled," a Russian fairy tale, 1922; concluding with the Benda Masques, representing 1919. Space does not permit a more extended review of this interesting feature, except to add that it was staged in a most artistic manner, produced with much skill as to stage management and reflected the utmost credit on those who had to do with its preparation.

The catalog this year, as in previous years, is a well prepared record of the best recent achievement in architecture and the allied arts. As reference volumes, these catalogs have large value and would make dignified additions to an architect's working library. We learn that there are a few copies available.

The work of the Jury of Selection and the Hanging Committee has been well carried forward. No exhibition of paintings has a more human appeal than has this exhibition of the League. There are no uninteresting spots, no mediocrity. As a means for good education in good architecture, the value of such a collection is very large. But, it seems that it might be well to say to exhibitors that it will not be possible for the League to maintain its high standards unless there is a perfect spirit of co-operation. The officers and members of the League give a very great amount of valuable time. This effort is absolutely unselfish. It should be acknowledged and appreciated and the way to show that is for exhibitors to contribute an effort proportionately as great as those who conduct these exhibitions.



UPPER GARDEN, ESTATE OF H. FLETCHER BROWN, WILMINGTON, DEL.

CHARLES WELLFORD LEAVITT & SON, LANDSCAPE ENGINEERS

WHAT *the* ARCHITECT THINKS *of* ZONING*

BY HARVEY W. CORBETT, *President, The Architectural League of New York*

THE growth of American cities has constantly exceeded the prediction of the most optimistic. People like to go where the crowds are. It may be that they find in the city greater opportunity, greater financial returns, or come into closer contact with recreation and amusement. It may be greater markets or a more abundant labor supply that attracts the manufacturer. In any event, the increase in urban over country population has become a marked feature in the economic life of this country. This steady increase in population has brought the larger American cities into a constant state of flux. Building operations unknown a generation ago house enormous numbers of people within a single structure. These great city buildings, with their large population of workers, may be compared to springs or reservoirs that feed the stream. The crowds upon the streets at the hours of going to work in the morning, at noon time and at the closing of business in the evening are determined by the volume of population poured into them from the great city buildings.

HARVEY W. CORBETT
(From an etching by Emil Fuchs)

In our American cities we are in a peculiar position of those who have built canals first and later completed the reservoirs which are to fill those canals with water. Our reservoirs have in many cases grown too large for our canals and the result is that they overflow and are congested with traffic whenever the tide of humanity is led into them.

Apart from the social and moral benefits that attend wise building regulation, there are certain architectural values and economic advantages that follow zoning regulations. Some of these are now beginning to be apparent in New York, where the results are closely watched and while in the case of others sufficient time has not yet elapsed to demonstrate fully the workings of the laws, yet there is much partial evidence from which inferences may be drawn.

The life of the average modern city building is not more than a generation. I think this span of life will be found to prevail in Philadelphia as in New York. There are very few of our modern buildings that are not liable to be pulled down to make way for more modern structures within thirty years, which is a long time in the rapid pace set by the metropolitan cities. The new buildings, conforming to the set-back law, will produce an even cornice line. This cornice line, of course, will be higher along wide thoroughfares than in side streets, but will produce for the man in the street an architectural uniformity that does not exist today.

It is uniformity of height that in Paris smooths out the strongest architectural contrasts between adjoining buildings and brings about a harmony and beauty that blend the entire city into a single unified concept. But American cities operating under the zoning regulations possess a greater advantage. The buildings above the set-back line will present every possible combination of cupola, spire and tower. In the case of New York City and of other cities now building for the future, there will be produced a skyline that will be even more impressive from a distance, as seen from New York harbor, for example, than the New York of today.

The limitations of the heights of buildings will have an important effect upon property values. The bulk of buildings is determined by land value. The land value reflects directly the possible return. Since in proportion to the ground space occupied, a low building will not return an income commen-

*Paper read before the Housing Conference held in Philadelphia, in December, 1923.

surate with that of an adjoining higher building, the result will be, in avenues of high property value and possessed of adequate transit, to force all buildings up to the line allowed by law, producing the uniform cornice line. The direct result of the uniformity will be to increase taxable values enormously for the number of highly valuable types of buildings will be greatly increased.

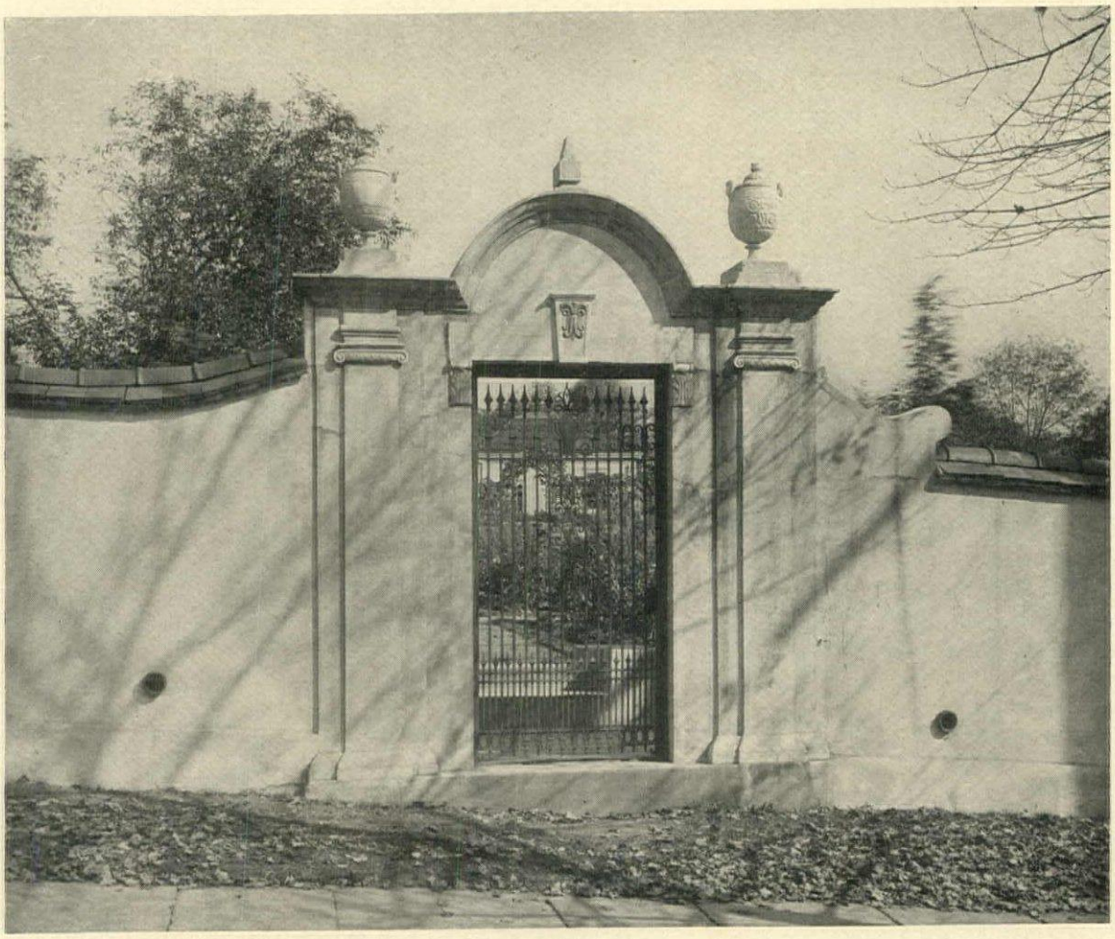
It is possible, however, that the increase in individual taxation may not be proportionate with the advance of taxable values, for the uniformity in building heights which the law will produce will tend to distribute the burden of taxation. Instead of a comparatively few towering structures, there will be hundreds of great buildings of uniform height and a similar amount of floor space for a given area of ground space.

This in turn will tend to equalize and distribute the volume of vehicular and pedestrian traffic which flows upon the streets. It will give a greater population per square mile of city with less crowding than at present. The developments, as always heretofore, will follow lines of transportation.

The skyscraper of the future will not be so lofty as the skyscraper of today, but will be more in harmony with the buildings next to it. There will be something beyond the plain street front to intrigue and fascinate the imagination. We look around about us; we look from side to side; we look down the length of the street, and we often have to "look out!" But we don't look up. The new type of city with its innumerable spires, towers, and domes, set back from the cornice line, will provide a fascinating vision, all the novelty and originality in the world brought under a larger scheme.

Thus I firmly believe that the present is the time to plan for city zoning. I think when the public realizes what it means in beauty, in improved types of buildings, in freedom from congestion, in advanced property values, they will, eagerly accept the new idea in city building and the younger generation will look forward to the planned city of the future as a great advance over the city that has, like Topsy, "just growed."

The origin of the American city slums lies in the inequalities of city planning. Skyscrapers next to mean business blocks, palaces next to hovels, will be unknown under more rational city building. When the meaner buildings disappear under population pressure and zoning laws, many of the problems of housing sanitation and recreation will disappear.



GATEWAY TO GARDEN OF W. S. BENSON, PASSAIC, N. J.

JOHN F. JACKSON, ARCHITECT

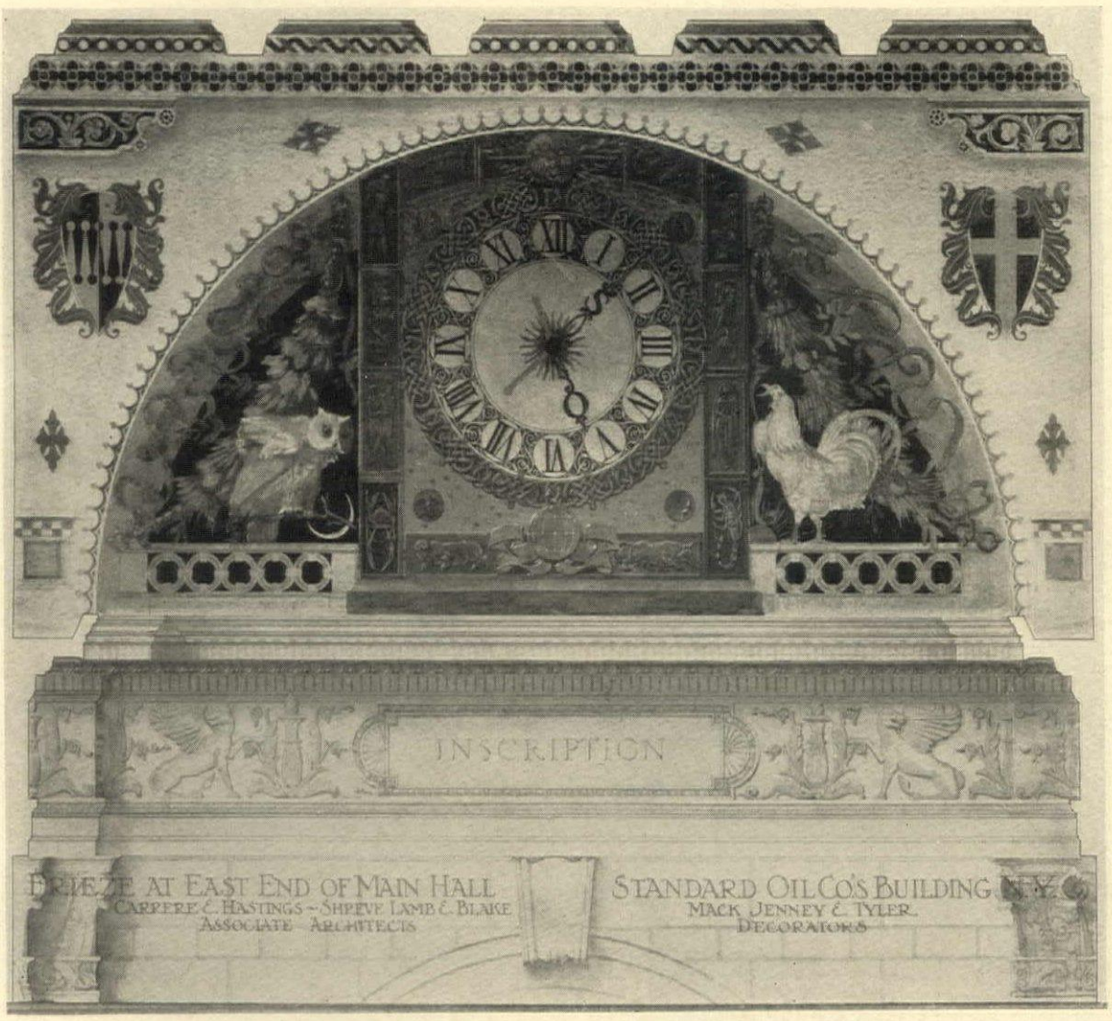
Built of hollow tile, stuccoed in a faint shade of pink. Coping of red roofing tile. Gateway coping of Indiana limestone. Ornaments of polychrome terra cotta

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

AUTUMN

OVERDOOR PANEL IN ORIENTAL GALLERY OF CHAUNCEY McCORMICK, CHICAGO, ILL.

ANTHONY DE FRANCISCI, SCULPTOR—PHILIP L. GOODWIN, ARCHITECT



PAINTED DECORATION OF EAST END OF MAIN HALL OF BUILDING FOR THE STANDARD OIL CO., NEW YORK

DESIGNED AND EXECUTED BY MACK, JENNEY & TYLER

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

EDITORIAL COMMENT

THE CONTROVERSY surrounding the election of Fellows at the last convention of The American Institute of Architects clearly disclosed that a group of five men could prevent the election of any candidate that for personal reasons they might seek to oppose. The high type of men that the Institute has selected for advancement to honorable rank should not be subjected to the risk of such small political methods. It, therefore, seems an act of simple justice so to amend the present by-laws that the election of Fellows shall be as logically conducted as is the election for membership.

It has been suggested, and the proposal is one that it is believed would be a great improvement, that the Jury of Fellows, composed largely of past presidents of the Institute, should, after a thorough canvas of the nominations forwarded by the chapters, certify their findings to the Board of Directors. The Board, composed of fourteen members, and as now organized regionally covering the entire country, would then vote on the candidate certified by the Jury, and a majority vote would elect. By this method the highest class of Fellowship would be assured, and that, of course, is the first purpose of the Institute.

With the adoption of a revised by-law along the lines above suggested, among the first duties of the Jury might be the consideration of the candidacy of men who have failed of election during the past two years.

* * *

THE DECISION TO HOLD the 1925 convention of The American Institute of Architects in New York City will certainly result in an epoch marking meeting. The outstanding feature will undoubtedly be the architectural exhibition. The opportunity offered and the ample time available for preparation should produce a result that will awaken the liveliest interest on the part of the general public.

Naturally, the plans at the present moment are largely nebulous, but it seems to be the fixed intention to combine with The Architectural League of New York and to secure representative exhibits from the architectural societies in the leading capitals of Europe. With every Chapter of the Institute sending its best, with The Architectural League at its best, and Europe sending every good thing available, an exhibition will be assured greater in volume and more important in every detail than has ever before been held anywhere. Here is an end worth working toward.

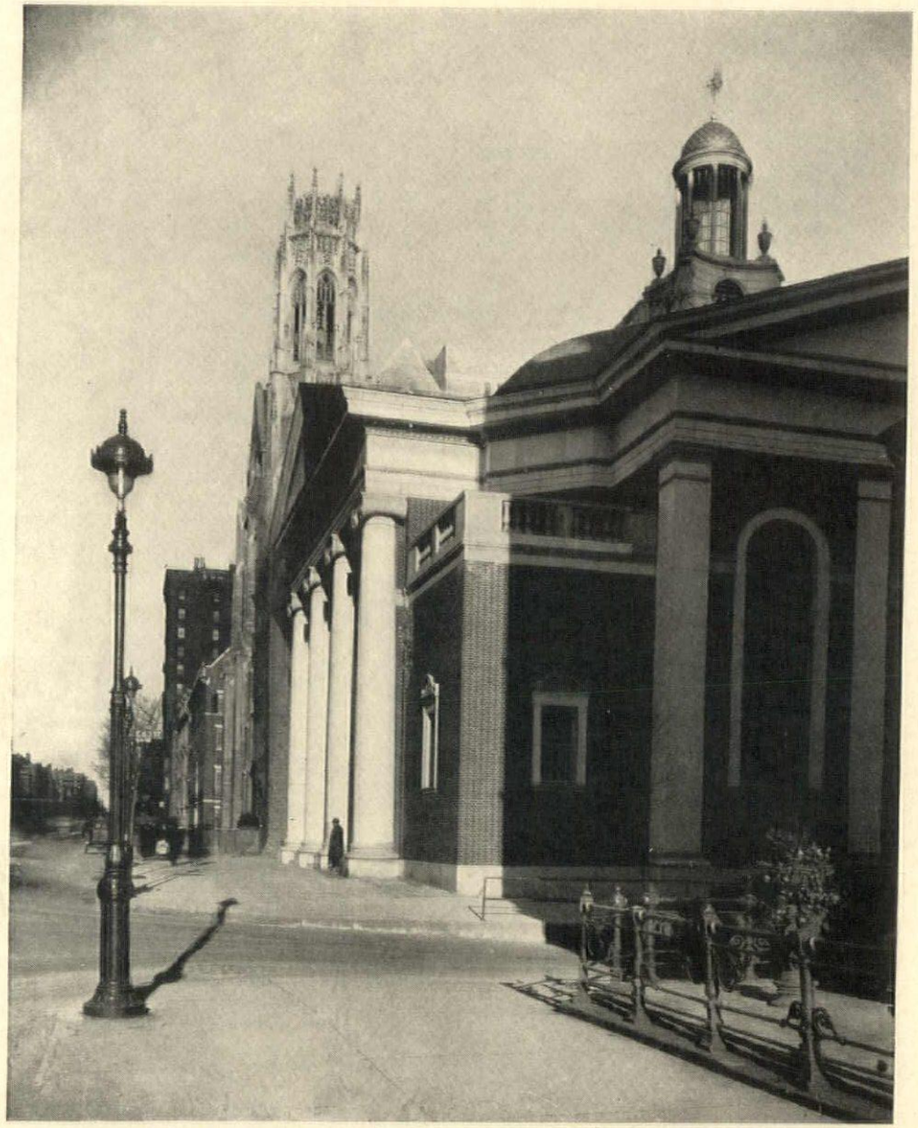
It is humiliating to be forced to acknowledge that in New York, the largest city of the United States, there is at present no Fine Arts building adequate to house a large and important exhibition such as is contemplated. The committee in charge of the 1925 exhibition will undoubtedly find an adequate place, but it will have to search among structures designed for purely commercial purposes. Such a condition is not perhaps altogether unfortunate, particularly if it locates the exhibition where it will attract the largest number of people and not repel, by a certain exclusiveness, that part of the public it is most desirable to reach. The present situation accents in the most forceful way the lack of civic pride in New York and emphasizes the necessity for propaganda that will arouse a demand for a Fine Arts building. If this sentiment has not crystallized in time to provide a building, there is a fine opportunity for the Institute and the League to work energetically and to inaugurate a competition that would present the matter in graphic form to that class of people who must "be shown" and who are not easily moved by a plain statement of fact. Here the Society of Beaux-Arts Architects, who will no doubt participate in this 1925 exhibition, will find a chance to present in its Paris Prize Competition a problem based on an actual site and well understood conditions.

The great amount of work necessary to co-ordinate all the many details before this exhibition is assured will demand much time and the finest professional ability. The year ahead of it and the ability of those who will undertake this huge task, bespeak a splendid success.

BUSH HOUSE, LONDON

HELMLE & CORBETT, ARCHITECTS

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



THIRD CHURCH OF CHRIST SCIENTIST, PARK AVENUE, NEW YORK

DELANO & ALDRICH, ARCHITECTS

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

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DELANO & ALDRICH, ARCHITECTS

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

LIVING ROOM WINDOW, "GOODESTONE," MIDDLEBURG, VA.

GOODWIN, BULLARD & WOOLSEY, ARCHITECTS

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

GARDEN ELEVATION

HOUSE OF MISS ANNE MORGAN, SUTTON PLACE, NEW YORK

MOTT B. SCHMIDT, ARCHITECT

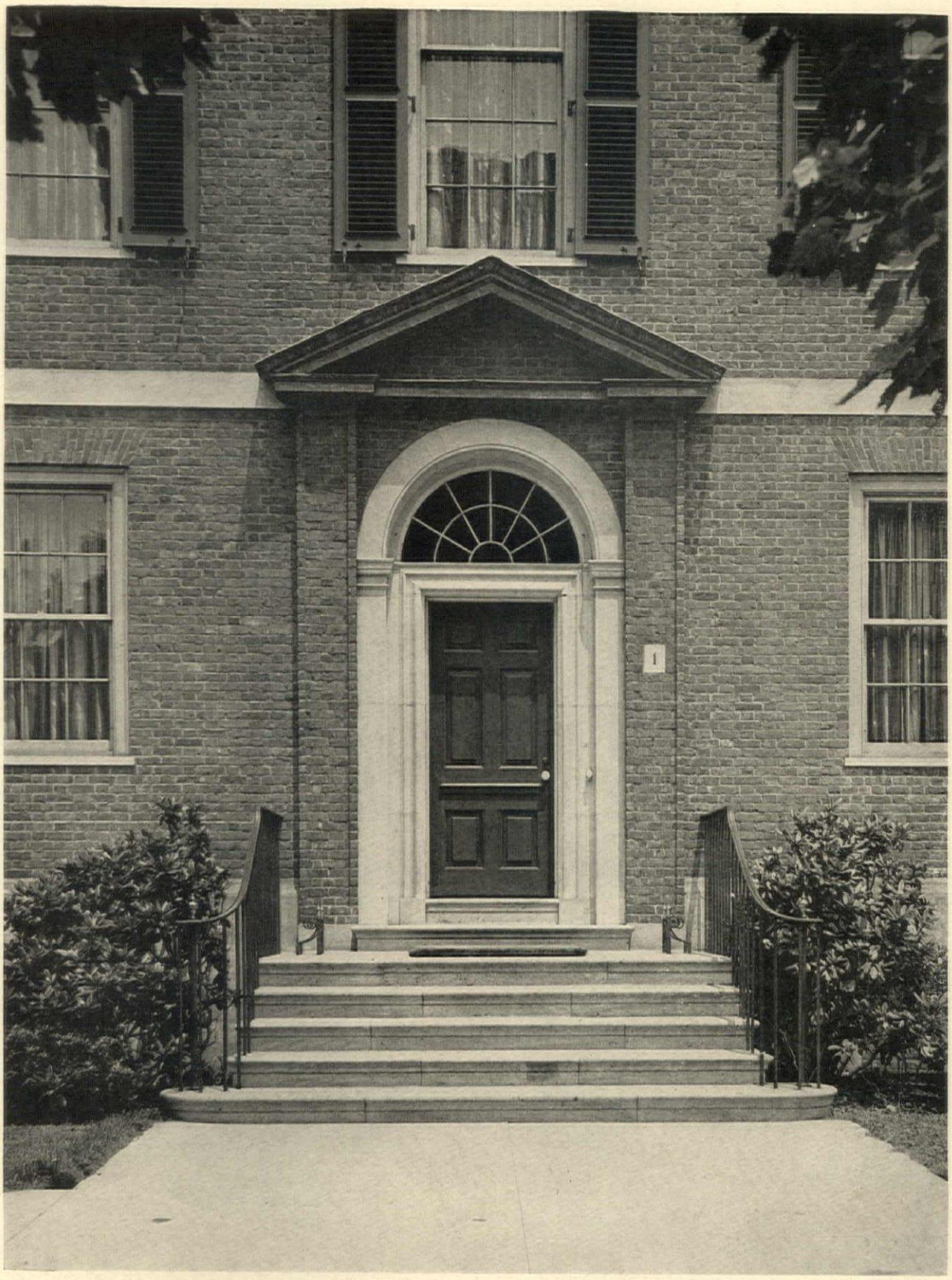
(Thirty-ninth Annual Exhibition, The Architectural League of New York)

DETAIL OF DOORWAY, STREET ELEVATION

HOUSE OF MISS ANNE MORGAN, SUTTON PLACE, NEW YORK

MOTT B. SCHMIDT, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



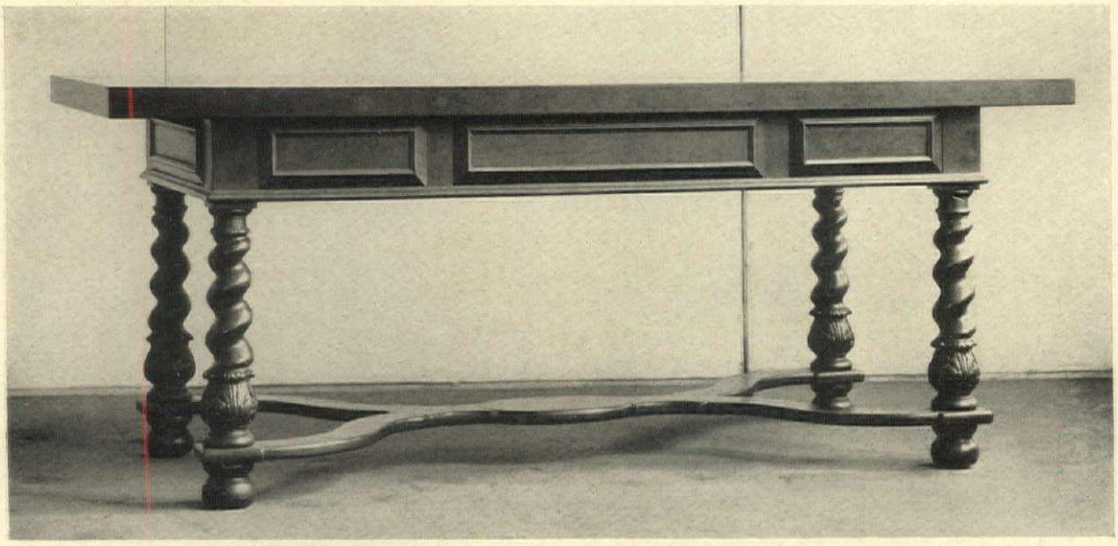
DETAIL OF DOORWAY

HOUSE OF MRS. W. K. VANDERBILT, SUTTON PLACE, NEW YORK

MOTT B. SCHMIDT, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

INTERIOR ARCHITECTURE



Well designed and executed walnut table. The simple lines are relieved only by the acanthus leaves from which the twisted legs evolve and by a delicate inlay design which decorates the edge of the top

EXHIBITION *of* INDUSTRIAL ART *at the* METROPOLITAN MUSEUM*

THERE are over nine hundred objects, specimens of work of American designers and manufacturers, shown in the annual exhibition of Industrial Art, which opened at the Metropolitan Museum of Art, New York City, on Monday, January 14. The purpose of the exhibition, as set forth by the Museum authorities, is to demonstrate the artistic progress of American manufactured goods during the year 1923, and it does this well. The quality of design and workmanship of the entire collection is to be commended. Furniture and rugs, textiles and wall papers, jewelry and silverware, and other goods, representing some forty industries, comprise a finely educational exhibition. It is interesting and worth while remembering when viewing the collection, that every product represents a stock pattern,—goods actually produced in quantity and carried in stock by the manufacturer—and not mere special order work. As much credit must be given the Museum for fostering an exhibition of this kind as to the designers and manufacturers whose work made the exhibition possible and worth while.

The exhibition is strictly a manufacturer's exhibit and from his viewpoint is a huge success. It is not, therefore, a criticism to call attention to a different method of hanging and arranging of the material, which would surely increase its interest and educational value to the layman and to the decorative trade as well. Of course, the size and proportions of the available space for an exhibition of this character in a museum are against real unity of scale. For instance, the effect of a chandelier hanging from a thirty-foot ceiling on a fifteen-foot chain, when it was designed to hang from a twelve-foot ceiling, with perhaps, fifteen inches of chain, cannot be good. Some sort of arrangement should be made to take care of this, or the chandelier should not be hung at all. It is also of the utmost importance in showing fabrics to point out their relative value in a scheme of decoration. The designs and colorings of the many fabrics and wall papers on view are of such a variety that the grouping of materials, according to their use in an actual scheme of decoration, could be easily and attractively done. While it need not be necessary to indicate the purpose for which each material is to be used, each group could have a fabric for the window drapes, the door hangings, and the different pieces of furniture coverings, as well as a wall paper and a rug. These materials could be of various designs,—some plain, some figured,—

Illustrated by photographs supplied by the Metropolitan Museum of Art

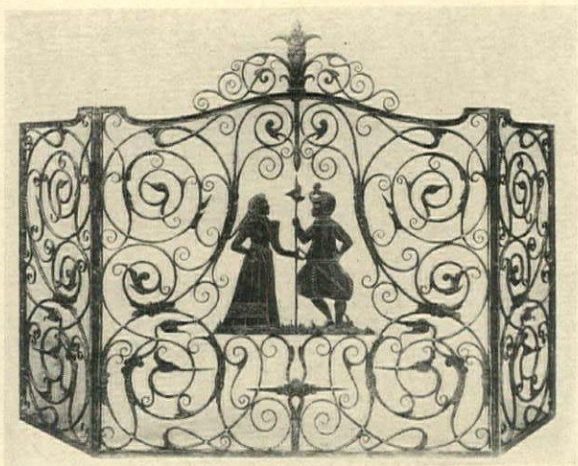
of different textures,—some linens, some mohairs, —and all of colors entirely harmonious. The unity of scale in all designs used in a scheme could then be retained.

The furniture on exhibition is of the highest order, and represents the peak of good quality and design. The pieces are all of fine lines and proportions, and the high standards of workmanship may not be justly questioned. It is interesting to note that, although this furniture collection represents the best specimens of design of the year 1923, every piece shows a decided period influence. This, too, is in no sense a criticism, for THE AMERICAN ARCHITECT maintains that the periods are the highest standards of good taste and proportion, and, in choosing them for inspiration, the modern designer has made no mistake. On the other hand, the designs cannot justly be said to show anything of very great originality. In the galleries the other day, an observer was heard to remark that a certain piece of furniture on view was a "beautiful reproduction." It is quite impossible that the authorities would allow of a reproduction under the rules of admission. Yet this shows the striking influence of the periods on the designs.

One of the beautiful mohair patterns which are conspicuous amongst the textiles exhibited. Whilst the design is purely modern in character, it shows the designer's familiarity with older styles

Wall paper design of decided Japanese feeling, a paper not so decided in character that it could not be used as a pleasing wall covering in almost any room. The colors are soft and their effect on a wall is like a delicate Oriental fabric

The textiles exhibited form one of the most interesting features of the collection. Modern methods of manufacture have advanced so far that looms can turn out practically anything the designer calls for,—a hearty indication that we are gradually but surely developing a better craftsmanship. Among the tapestries and brocades,



An artistic iron fire screen. The scroll design is good in line and proportion and the figures are well placed in relation to it. The chiseled-in lines give a modelled effect to the flat surface

there are some unusual designs and colorings. The wall papers are equally good. Judging from the designs shown, it is apparent that figured wall papers are coming into vogue again. The soft colorings and pleasing designs simulate an effect of

Armchair of William and Mary influence. The turnings and carving of the legs and stretcher are good in detail and the embroidered covering sets off the lines of the arms, seat and back to good advantage

fine fabrics. The rugs shown indicate the rapid advancement of the industry in this country both as to weave and pattern. Many so cleverly follow the Oriental methods as to deceive all except experts.

The Bulletin of the Metropolitan Museum of Art, discussing the influence which it is endeavoring to enact on the uplifting of industrial art, clearly states this matter. It says:

"This is not the occasion to offer a defense for mass production in the industrial arts. Whatever such factory methods may or may not do to design under present conditions, it is not our purpose to discuss or to prescribe for. It is an incontrovertible fact that quantity production is a democratic expedient for meeting the requirements of the mass, that it does now meet these requirements, and that, in the estimation of those who have most closely observed its method and results, it has consistently improved the design of its output. It is with the *design* of this output that the Museum is concerned. The appearance of an isolated example of craftsmanship must remain the concern of a limited number of fortunate persons who come in contact with it. The design of a repeat of curtain material can become something akin to a public nuisance. Many such designs issued at the same time may even constitute a conspiracy against public taste. Thus, although fully convinced that the craftsman should also have his opportunity to demonstrate his prowess in an exhibition of like proportions, the Museum feels that the producer of industrial art in quantity represents from an educational and inspirational point of view the more urgent problem."

From every angle, then, the exhibition is highly creditable to American manufacturers. In its arrangement, too, the object of the exhibition is attained. The suggestion made for different arranging is only to increase the value of the exhibition, where the unusual assembling of such a wonderful collection of allied industries under the same roof makes its further value possible.

Previous exhibitions of this nature sponsored by the Museum served the purpose of showing the use made of the Museum by the designers. That this is a well known fact is now conceded by all. The Museum has on its staff members who are especially delegated to assist industrial workers and designers. Manufacturers are more and more realizing the value of the art quality in their product. The design, the one place where this art quality stands out conspicuously, must be the best obtainable. The high standard, which the designs of the various industries represented have reached, is in no small way accredited to the Museum and its staff. Other museums scattered over the country should take cognizance of this fact. They have the material, but perhaps they have not encouraged designers to make the same use of it as has the Metropolitan. Let the exhibiting of industrial art become nationwide, thus effecting better designs and a better market!

INTERIOR ARCHITECTURE *at the* LEAGUE EXHIBITION

AN interesting feature of this year's exhibition of The Architectural League of New York is the large space set aside for photographs and illustrations of architectural interiors. There is no doubt of the increased appeal of an interior design when based on architectural principles and the many interiors fashioned on these lines shown in the exhibition prove that this feeling is becoming better understood by both clients and architects. The general style of most of the interiors exhibited bear out an earlier statement made by this department that the modern American style of interior architecture in its best form is featured by simple formality and comfort. Periods are not now in vogue except for inspirational purposes, and informality is entirely discarded. But a well balanced architectural arrangement of wall treatment, decorations and furniture is always conspicuous.

While it is impossible to suggest any other way in which to show complete interiors except in the manner which is there used, by photographs,—a little more of the actual working out of the various details which are involved in real architectural language could not be out of place and would be most instructive. Rough studies, finished renderings and even full size details of this phase of architectural designing would impart an educational value to the exhibition which cannot be attained by photographs. The proof of the interest which this kind of drawings would arouse can be judged by that shown in the sketches and renderings of certain exterior work. For instance, the studies in black and white of different phases of the application of the zoning system are probably as much observed and discussed as anything in the exhibition.

That part of the exhibition devoted to mural art bears out further the truth of these statements. There is assembled a group of mural decorations by representative artists, some sketches in black and white, some scale drawings with color

GROUP OF SPANISH FURNITURE DESIGNED AND MADE BY KENSINGTON MFG. CO.

The present revival of interest in the Spanish style of design is well met by these tables and chairs which bear marked characteristics of that interesting period

suggestions, some full size panels in complete color, in other words, all the phases of execution, and together they make a valuable part of the exhibition. There are also some fine specimens of work of students of the American Academy in Rome, of which a Pompeiian fresco in color is conspicuous. For the student of mural painting, especially, this interesting portion of the exhibition is highly instructive. Could not the other branches of the architect's field be put forth this way?

CHIMNEY PIECE TREATMENT IN THE LIVING ROOM OF HENRY WIGGLESWORTH, LAKEVILLE, L. I., N. Y.

ALEXANDER MACKINTOSH, ARCHITECT

The architectural background makes a fine setting for the furnishings

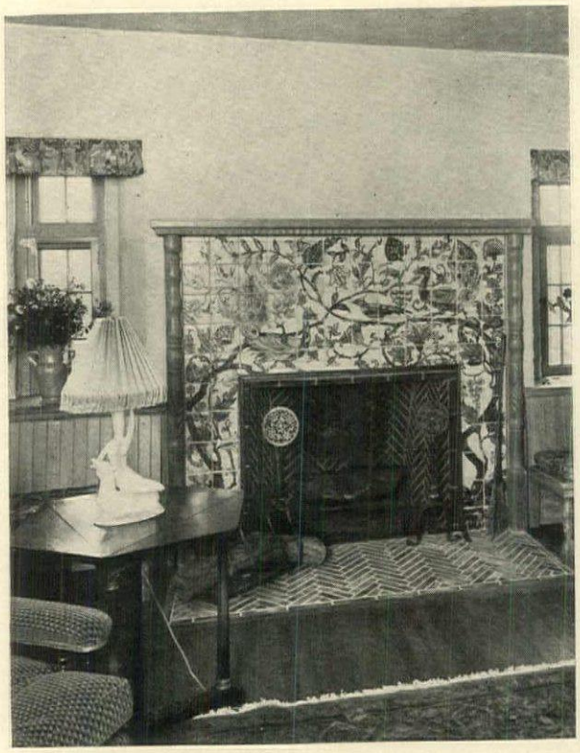
In considering the character of the material which manufacturers and craftsmen have sent to the League exhibition, it seems that the generosity of the League in giving up space and doing everything possible to provide an opportunity for their products has not been properly availed of. The attempt to show the progress of the manufactured goods is not very successful, and the few odd pieces of furniture and wrought iron work but touch the rim of what might have been accomplished. While all the material is good,—else it could not have

LIVING ROOM IN HOUSE OF MISS ANNE MORGAN, SUTTON PLACE, NEW YORK

MOTT B. SCHMIDT, ARCHITECT

The strictly architectural design of the wall treatment does not make the room stiff or formal, but its dignity is appealing

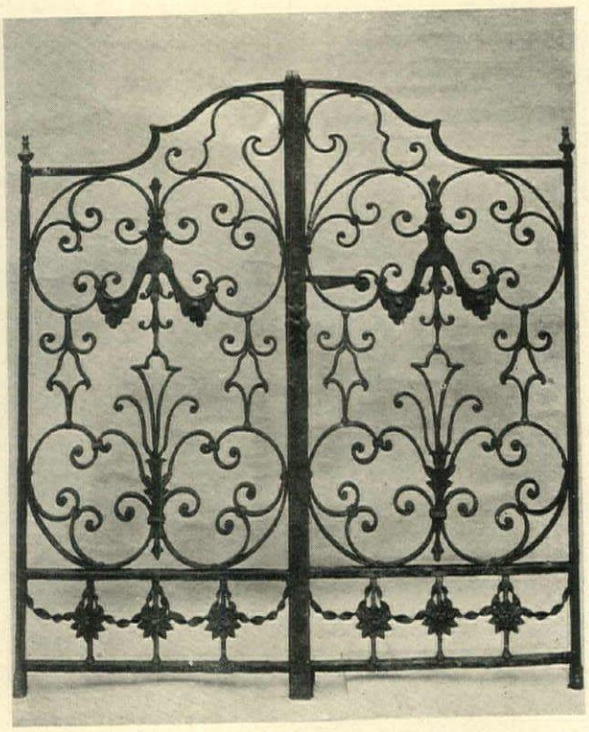
passed the Jury of Selection,—it certainly is not as comprehensive nor as important as in earlier years. Manufacturers should understand that these exhibitions afford an unusual opportunity and should show better appreciation of the efforts of the League to promote their interests.



INTERESTING TILE MANTEL FACINGS IN THE LIVING ROOM OF HERMANN YOUNKER, ELMSFORD, N. Y.
BUCHMAN & KAHN, ARCHITECTS

An informal and cozy room in which the mantel is conspicuously the center of attraction

The interest in rendering of architectural designs, which has already been suggested, is a subject to which too little attention is given. To be able to design and attractively render those designs does not befall the lot of even the best architects, but when it does it is readily discernible. A rough perspective sketch rendered by the designer will convey more than an accurate perspective drawing, done in full color, made by another. Education of architectural students to appreciate this fact is most necessary. No better place could be found to demonstrate the art of architectural rendering, to students and the general public as well, than here at the League exhibition. For ideas, suggestions and inspiration, photographs serve their purpose, by showing accurate results and records of work accomplished. But the sketch on paper must clinch the job, before any photographs can be made. And the client,—an amateur, a layman—must decide from the sketch. It must tell an architectural story in architectural language which the layman can understand. He does not understand details, but he does understand effect. All eyes are trained to grasp effect, but only professional eyes can see detail. This is the type of pieces that are looked for at an exhibition of this kind. The few that are there are proving their value. The finished photograph alongside the rough sketch gives an opportunity for studying how the sketch is made, what to show and what to eliminate, and how to show it.



ITALIAN GATES OF IRON, DESIGNED AND EXECUTED BY P. A. FIEBIGER, IN THE CRAFTSMAN EXHIBIT AT THE LEAGUE

The LAW *as to* ARCHITECTURE

BY CLINTON H. BLAKE, *Jr., of the New York Bar*

SOMETIMES the architect will agree with a client, either by a definite written agreement or verbally, that the plans are to be satisfactory to the client and that, whatever changes are necessary to make them conform to the wishes of the client, will be made and are included in the architect's services. This is a particularly dangerous proceeding. Unfortunately, also, the chances are that it will be adopted by the architect in the case of work involving a considerable amount of money, as it is in just such a case that he is anxious to secure the job and to give to the client such assurance as may be necessary to enable him to do so.

Where a client is reasonable and fair-minded, and is not inclined to take any advantage of the architect, the latter will probably suffer no ill effects from having entered into an agreement of this kind. If, however, the client is either inclined to sharp practice or of the arbitrary and unreasonable type, the architect will have reason to regret having, in effect, placed himself in the client's hands by agreeing that he will perform whatever services are required to meet the latter's wishes. The architect would much better not secure the job than to proceed with it and be called upon to prepare set after set of studies and plans, without receiving adequate compensation for his work. Not only will his fee be jeopardized under a provision such as that referred to, but, if he refuses to make the changes and additional plans called for by the client, unless he is paid an additional fee, he will face the claim by the client that he has been guilty of a breach of the contract, and that he must respond in damages to the client as well as forfeit any fee for the work done.

It must be remembered always, that, where a contract is entered into, the architect and the client alike are bound by its terms. The architect cannot have his choice of proceeding under the contract or under *quantum meruit* for the reasonable value of the work done. The contract will control and be decisive. If the contract provides that the architect's services are to include the changing of the plans until the client is satisfied, it will be enforced in accordance with that provision and, unless and until the client is satisfied, the architect will be forced to continue to make changes and incur additional expense thereby, unless it can be shown that the client is acting in bad faith. Under certain conditions, the number of the different sets of plans might be limited by legal implication to a reasonable number, but in any event, all profit to the architect would be wiped out by being forced to make repeated changes. If the architect does undertake any work under an agreement of this character, he should realize the danger which he faces and at the least confine his agreement to preliminary studies and not extend it to matters of plans, details and specifications.

Even assuming that, after the client has demanded various new sets of sketches or plans, the architect refuses to make more, claiming that the client is acting capriciously, and is sustained by the court under the facts in the case in this contention, it will be difficult, if not impossible, for him to recover his compensation for the work which he has done, if the contract is so worded that the architect is thereby bound to furnish plans which are satisfactory to the client.

As a matter of fact, the safe procedure is just the converse of that which we have been discussing. The architect, where new sketches or plans are prepared, should be entitled to receive the reasonable value of his additional services and, if those services involve the change to a different scheme, rather than simply modifications of the scheme first submitted, and the preparation, in effect, of entirely new plans, he should be entitled to payment for the second set of plans on the same basis as the payment accorded him on the plans originally prepared. This applies equally to plans and preliminary studies, and should be covered by the contract, where this is practicable. If it is not covered by the contract in this way, the contract should at the least provide that the architect is to receive the reasonable value of extra services made necessary by changes in the studies and plans. Where this is done, the question of reasonable value will be one to be determined upon all the facts in the case. The important thing is that the architect should not allow the prospective profit of an important job to blind him to the danger of placing matters entirely in the hands of the client and in effect agreeing to make as many plans as the whims of the client may call for. No job, however important it may be, warrants the taking of any such risk. The more important the work is, the more expense the architect will be put to for changes and for the redrafting of sketches and plans, where the client insists on holding the architect to the letter of his agreement.

LEGAL DECISIONS

A CONTRACT for the installation of plumbing in a public school building provided that the city might, in case of default of the contractor, take over the work and use the materials and equipment at the site. The contractor, to secure the bonding company against loss, had assigned to it all of its equipment. The contractor went into bankruptcy. On an action to determine whether the trustee or receiver for the bankrupt was entitled to this material and equipment, or whether the city might hold them, it was held: That the provision in the contract relative to the taking over of the equipment by the city gave the city and the bonding company no rights except such as they might receive on the theory of chattel mortgages, and that neither one of them was entitled to the equipment as against the creditors of the contractor for the reason that the contract and assignment had not been filed as chattel mortgages, as required by the New York Lien Law. That in addition, there was no valid pledge to the city or the bonding company of the equipment in question which either of them might enforce, because there had been no delivery of possession of the equipment, and until and unless the city took over the materials at the site they must be deemed to be in the possession of the contractor, and the contractor might recover them or its creditors levy execution upon them.

In re Sullivan, 254 Fed., 660.

THE general contractors of a building in Cleveland were required to complete the performance of the work within a specified time. They let a sub-contract for the installation of metal doors in the building, providing that the work should be completed by October 1. The general contractor was unavoidably delayed and the building was not far enough advanced in its construction for the doors to be installed at the time fixed for the completion of that work. The representatives of the plaintiff and the sub-contractor for installing the doors, consulted with the general contractor, the defendant, as to details of the sub-contract which plaintiff had undertaken, and these representatives secured in this way information and knowledge as to the progress of defendant's work. The sub-contractor attempted to rescind its contract, and the defendant, the general contractor, opposed its right so to do. The court held: That if time were of the essence of plaintiff's sub-contract to install the metal doors and the defendant did not have the building ready for the installation of the doors at the time fixed for the completion of the sub-contract, plaintiff would have had the right to cancel the contract at the expiration of that date. The court held, however, that in the case in question, time was not of the essence of the contract, inasmuch as it did not in terms so provide; that the fact that the general contractor was unavoidably delayed did not, as a matter of law, warrant the sub-contractor under these conditions in canceling its contract; that the knowledge acquired by the representatives of the plaintiff from the defendant as to the progress of defendant's work should be considered the knowledge of the plaintiff; that whether the delay of the general contractor is completing the building to such a point as would allow the sub-contractor to install the metal doors in accordance with his contract was so unreasonable as to warrant the sub-contractor in canceling its contract was a question for the determination of the jury; that whether plaintiff had waived, or by its conduct was estopped from urging, the failure of the defendant to permit the plaintiff to perform its sub-contract, was similarly a question for the jury.

Gill vs. Hale & Kilburn Co., 257 Fed. 906.

A BUILDING contract provided that in the case of default on the part of the contractor the owner might retain and use all materials brought on the ground by the contractor. The contractor went into bankruptcy, and the question was raised whether the foregoing contract provisions would apply to materials not owned by the contractor in existence at the time the contract was made. The court held: That they would not and that the provisions of the contract were not enforcible against the trustee in bankruptcy as to materials not owned or existing at the time the contract was entered into; that mortgages or contracts pledging subsequently acquired property, while void at law, will be enforced in equity as agreements to give liens as between mortgagor and mortgagee and as against purchasers with notice, but will not be enforced as against creditors.

In re Midtown Contracting Co., 283 Fed. 871.

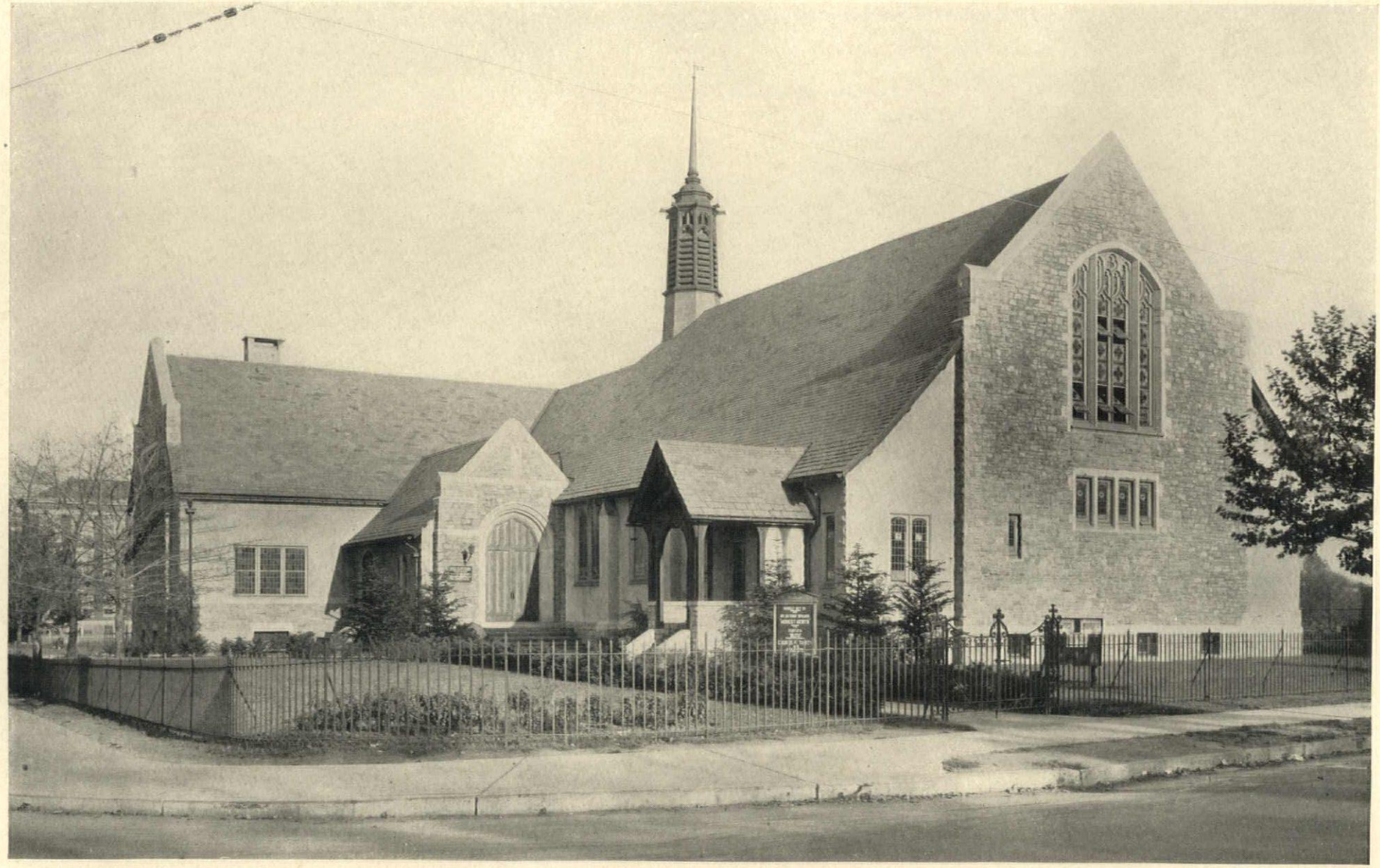
A CONTRACT required the owner to furnish a statement of defects. It was claimed that such a provision required him in addition to furnish directions as to the steps to be taken to remedy the defects. The court held: That the requirements to furnish a statement of the defects did not carry with it any requirement to direct what steps should be taken to remedy the faults complained of and that the owner was under no such obligation.

Lumber Co. vs. Amigo, 183 Penn., 439.

BUILDING FOR AMERICAN PIANO CO., WEST 57TH STREET, NEW YORK

CROSS & CROSS, ARCHITECTS

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



CALVARY BAPTIST CHURCH, CLIFTON, N. J.

JOHN F. JACKSON, ARCHITECT

Sussex limestone; stucco on hollow tile; green and purple slate roof

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

MAIN ENTRANCE, Y. M. C. A. BUILDING, PASSAIC, N. J.

JOHN F. JACKSON, ARCHITECT

Building contains gymnasium 50'x80', swimming pool 20'x60', home rooms for men and boys, educational classes, banquet rooms, cafeteria and 100 bedrooms

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

TOWER AND PARLOR WING, THE FIRST BAPTIST CHURCH, JAMAICA, L. I., N. Y.

JOSEPH HUDNUT, ARCHITECT—W. E. MANHART, ASSOCIATE

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

DETAIL OF GARDEN FRONT

HOUSE OF FRANK A. HOLBY, BEECHMONT, NEW ROCHELLE, N. Y.

W. WHITEHILL, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

COTTAGE ENTRANCE, FARM BUILDINGS, SYOSSET, L. I., N. Y.

PHILIP L. GOODWIN, ARCHITECT

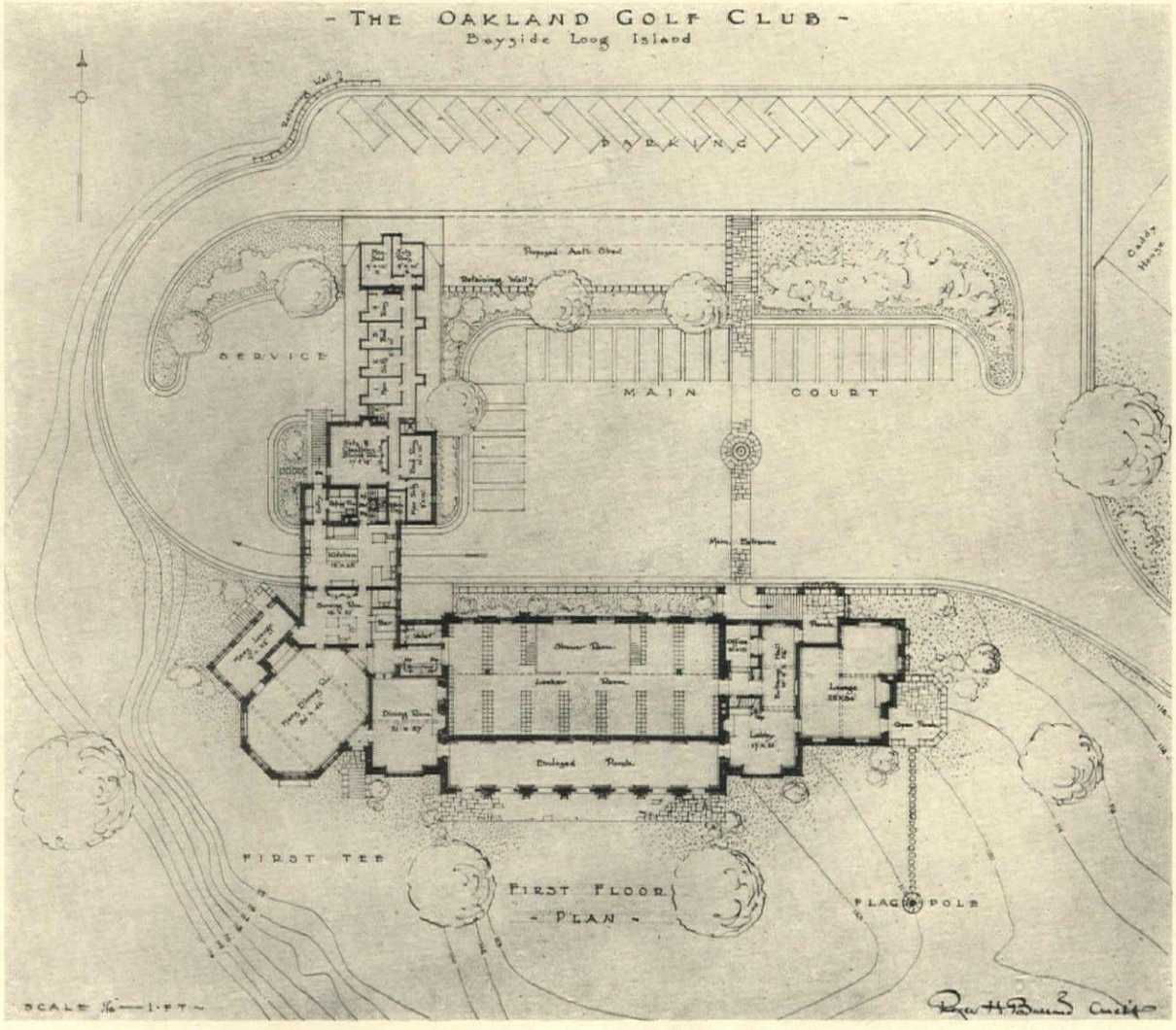
(Thirty-ninth Annual Exhibition, The Architectural League of New York)

CLUB HOUSE, OAKLAND GOLF CLUB, BAYSIDE, L. I., N. Y.

ROGER H. BULLARD, ARCHITECT

The long, low roof lines are accentuated to carry out the character of a dwelling. The change of material from stone to shingles is consistently handled

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



ROGER H. BULLARD, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

ARCHITECTURAL ENGINEERING

AIR LEAKAGE THROUGH *the* OPENINGS *in* BUILDINGS*

BY F. C. HOUGHTEN† AND C. C. SCHRADER‡

HEAT is lost from buildings in two ways: *First,* by transmission and *second,* by infiltration. Both sources of heat loss are of vital concern to the heating and ventilating engineer, the architect and the owner. Both are difficult of exact measurement and determination of constants which may be used in practice with the desired engineering accuracy. As a result, the calculation of heat loss from buildings probably involves a greater element of chance than any other engineering problem.

Heat loss by transmission was one of the first problems to receive the attention of the Research Laboratory. Total heat loss by infiltration for a room as a unit has also received considerable attention. (*Journal American Society of Heating and Ventilating Engineers,* January and September, 1921.) In January, 1916, a paper on Window Leakage by Stephen F. Voorhees and Henry C. Meyer, Jr., was presented at the Annual Meeting of this Society (*Transactions, A.S.H. & V.E.,* 22, 1916, p. 183).

The great need for information regarding infiltration led to the present investigation of the leakage of air through and around all types of windows and doors by the Research Laboratory of the American Society of Heating and Ventilating Engineers, in co-operation with The American Institute of Architects and the U. S. Bureau of Mines. The architect is interested in the relative leakage of air through various types of windows and doors, with and without weatherstripping, in order that he may design a building with the lowest heat loss consistent with other considerations. The heating engineer needs to know the actual leakage through and around all types and sizes of windows and doors, or better, through a unit length of crack around such openings, in order more accurately to calculate the heat loss from any room or building and supply radiation accordingly.

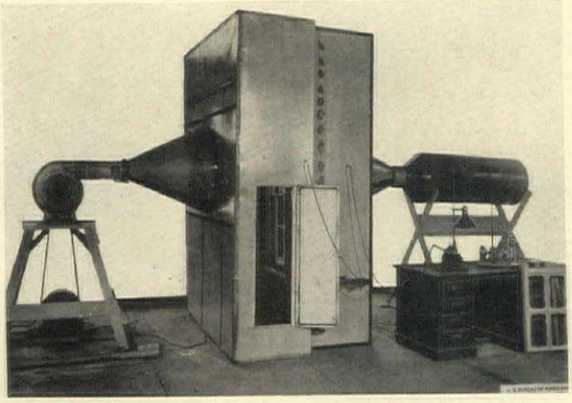


FIG. 1. APPARATUS FOR TESTING WINDOW LEAKAGE

This report deals with the method employed in the investigation of and results obtained for double hung windows, 2 ft. 8 in. x 5 ft. 2 in. x 1⅜ in., in a 13 in. brick wall, plastered on the inside with cement plaster. Results are given for the leakage through such a window without weatherstripping, with two types of weatherstripping, around the frame, and through the brick wall itself.

Leakage of air through cracks around windows and doors, cracks in walls, and through the porous materials of which walls are made, takes place in accordance with two physical laws. *First,* there is an interchange of air through the wall by diffusion; *second,* there may be a current of air through the wall caused by a pressure difference set up by the impinging wind. The first goes on at all times, is independent of wind velocity, and is probably negligible. The second takes place only when there is a pressure difference between the two sides of the wall. Such a pressure difference exists whenever the wind blows against the surface of the wall or whenever the direction of the wind toward the wall is changed. For any given velocity of wind striking the wall at right angles, there is always a definite pressure produced at the surface which tends to cause leakage of air through cracks. The amount of air leakage for any crack for a given pressure difference is the same regardless of whether this pressure is produced by wind or some other cause.

†Research Head, A.S.H.& V.E. Laboratory.

‡U. S. Bureau of Mines.

Uniform air velocities over a large area for a long period of time are hard to produce and difficult to duplicate. It is much easier to produce and duplicate pressure differences on the two sides of a window by means of a blower. It was, therefore, decided that for this investigation the apparatus should be so designed that a blower could be used to produce a pressure drop through the test window built in a section of wall.

Apparatus

After carefully considering all phases of the problem, the apparatus shown in Fig. 2 was designed by and built under the direction of the Research Laboratory. In many respects it is similar to the apparatus used by Voorhees and Meyer in the work previously mentioned. The apparatus is built of 18 gauge galvanized iron, and consists of a pressure chamber *A* and an air collecting chamber *B* separated by a section of wall including the particular window or door to be tested. Air pressure is produced in the first chamber by means of a motor-driven blower, and the volume of air passing through the wall is measured by the orifice box *C*. The test wall, 10 ft. high x 6 ft. 6 in. wide, is built in the collecting chamber section flush with its outer edge and the pressure chamber section of the apparatus bolted on later. The desired pressure is produced in *A* by varying the inlet of the blower, and by means of a butterfly damper and relief

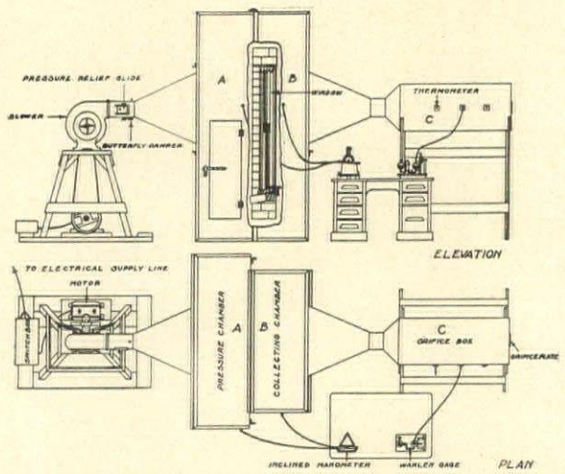


FIG. 2. DIAGRAM OF APPARATUS FOR TESTING WINDOW LEAKAGE

slide in the connection between the blower and *A*. Chamber *A* is substantially air-tight, although the requirements of the investigation do not demand that it be absolutely so. A door, 4 ft. x 1 ft. 6 in., allows entrance into this chamber to make any changes in the opening under study. The present blower has a capacity of 1100 cu. ft. per min., at 5 in. water pressure. Chamber *B* must be air-tight so that all air passing through the test wall must pass through the orifice box used for measuring its volume. Every precaution including soldering and painting the joints, was taken to make this part of the apparatus tight. Tests which will be described later in the report show that this condition was practically obtained.

The orifice box is one used by the Bureau of Mines for measuring the flow of steam and air in connection with boiler tests. The box is cylindrical in shape, 24 in. in diameter, with the orifice plates in the end. Orifice plates with openings varying from $\frac{1}{32}$ in. to 5 in. in diameter were made so that they were easily interchangeable. These were carefully turned out in the instrument shop of the Bureau of Mines in accordance with R. J. Durley's specifications. The law of the air flow through orifices has been well established by Durley (*A.S.M.E. Transactions,* Vol. 27, p. 193) and others, and is given by the equation:

$$Q = 1096.5\ C\ A \sqrt{\frac{p}{w}} \qquad (1)$$

Q = quantity of air, cu. ft. per min.
A = area of orifice in sq. ft.
p = pressure head in inches of water causing flow through the orifice
w = weight of air in pounds per cu. ft.
C = coefficient of discharge.

The coefficient of discharge used is 0.6 because it approaches this value at the pressures obtained for all the orifices used.

The pressure drop through the orifice which in this case is the difference between the pressure in the orifice box and the atmosphere, was measured by a Wahlen gauge accurate to 0.0001 in. of water. This gauge was developed at the University of Illinois and is fully described by A. C. Willard in the University of Illinois Engineering Experiment Station Bulletin 112.

While the accuracy of the orifice method of measuring air flow is well accepted by those familiar with its use, it was thought desirable to compare it with some other method. The orifices in the box as used in the tests were compared with a dry gas meter used as a standard in the meter testing laboratory of the Equitable Gas Co., Pittsburgh. These tests showed that the results for the orifices using the equation given above were more consistent than those for the gas meter with which it was compared. As a further check of the relative readings of the various sized orifices they were compared with each other and with duplicate orifices by placing a second orifice in the window opening in the test wall in series with the box. This was done when the total leakage through the wall was reduced to a negligible but known value.

The pressure drop through the test wall was measured by an inclined U-tube gauge of a par-

ticularly accurate type designed and built by the Bureau of Mines. It was compared with the Wahlen gauge and found to be accurate to 0.003 in. of water. The two legs of this gauge are connected by rubber tubing to chambers *A* and *B*.

A test of any particular window was made by regulating the blower pressure so as to give the desired pressure drop through the window indicated by the differential gauge. The size of the orifice chosen for any test was such as to give a pressure in the orifice box of from 0.3 to 0.7 in. of water. When these conditions were maintained for a sufficient time to insure equilibrium, the two pressure gauges were read simultaneously. By repeating the tests for a large number of pressure differences through the window, data was obtained for plotting a curve giving leakage through the wall in cu. ft. per min. against pressure differences in inches of water or wind velocity. All velocities and volumes given are for air weighing 0.07488 lb. per cu. ft. corresponding to air having a barometric pressure of 29.92 in. of mercury, a dry bulb temperature of 68 deg. fahr. and 50 per cent relative humidity. Many tests in such a series were repeated after opening and closing the window and also after taking the sash out of the frame and replacing them.

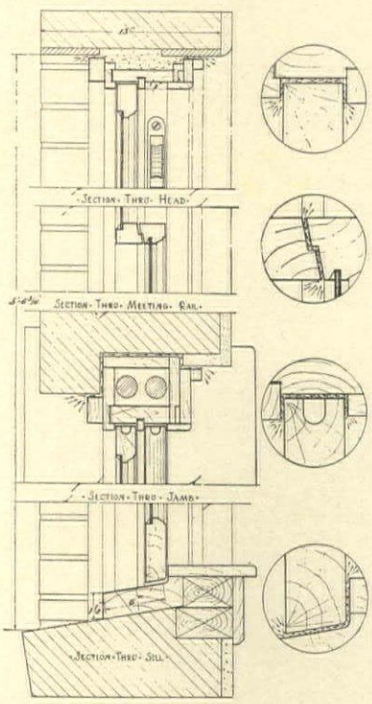


FIG. 3. DETAILS OF WINDOW WITHOUT WEATHER-STRIPPING

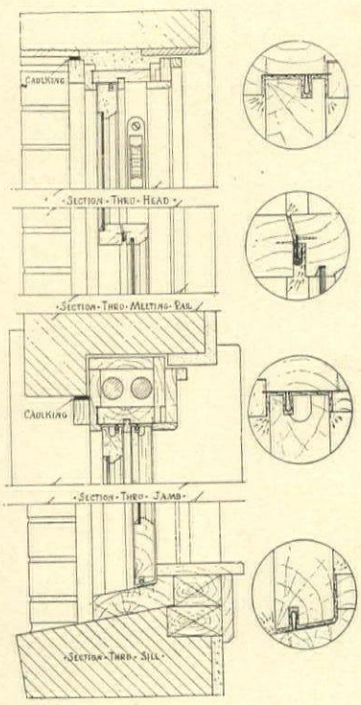


FIG. 4. DETAILS OF WINDOW WITH RIB TYPE WEATHER-STRIPPING

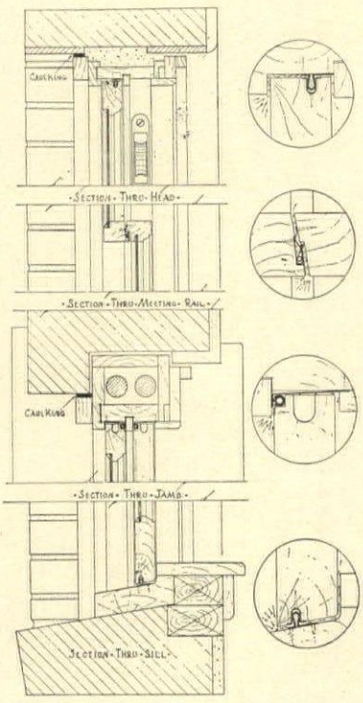


FIG. 5. DETAILS OF WINDOW WITH INTERLOCKING TYPE WEATHERSTRIPPING

Data and Results

The results given in this paper are for a double hung window, 2 ft. 8 in. x 5 ft. 2 in. x 1 3/6 in. in a 13 in. brick wall plastered on the inside with cement plaster. The brick wall was built, the plastering was done and the window hung by mechanics in the employ of large contracting firms in the city of Pittsburgh. The work was done according to specifications supplied by and under the direction of S. F. Heckert, representing the Structural Service Committee of The American Institute of Architects. All changes in the window, such as hanging new sash and applying weatherstripping, were made also by mechanics under his direction. Every precaution was taken to make the wall and window represent work done by the ordinary contractor under the supervision of an architect. The sash and frame were given three coats of paint. Fig. 3 is a vertical section through the unweatherstripped window with a horizontal section through one side of the frame.

For convenience in presenting, the results are given in two sections. *First,* those obtained in a preliminary series of tests on the unweatherstripped window in the wall as built, and with certain changes such as calking the frame, sealing cracks, and painting the wall; *second,* results obtained from a large number of tests with various sash hung under different conditions with and without weatherstripping.

Preliminary Tests

Preliminary tests were made in order to study the working of the apparatus itself and in order to differentiate between the various channels of leakage through the window and wall. Leakage through the window may be divided into the following parts. *First,* that which passes through the cracks, around the sash perimeter which are subject to weatherstrip application; *second,* that which passes through the cracks between the from and the brick and can be eliminated by calking under the staff bead or brick mold. This may be called the frame leakage. *Third,* leakage through other cracks in the frame or sash which cannot be eliminated by either weatherstripping or calking and may be called the "elsewhere" leakage.

Before making the first series of tests, the joint between the brick and the chamber wall was calked so that all leakage would take place through the wall or window. In all other respects, the wall and window were in the condition in which they were left by the mechanics, the sash having been fitted as tightly as would allow free sliding, though probably more tightly than would be allowable in actual construction because of swelling in rainy or damp weather. The window was left unlocked. A large number of tests were made with various pressure drops through the wall, many of them being duplicated several times after opening and closing the window, in order to determine the variation due to the way in which the window was closed. No care was taken to close the window in any particular way other than to see that the lower sash was pushed down against the sill and the upper sash raised until the meeting rails were even. Curve 1, Fig. 6, shows the leakage for this condition for various pressures or wind velocities. The shape of the curve is characteristic of all curves obtained with the various conditions of the window and, as would be expected, shows the same characteristics as the curve for the flow of air through an orifice. For a pressure difference of 0.1 in. of water through the wall corresponding to a wind velocity against the wall of 14.4 miles per hr., 42 cu. ft. of air per min. passed through the window and wall. With a pressure drop through the wall of 1 in. of water, corresponding to a 45.5 mile wind velocity, 174 cu. ft. per min. passed through.

The second series of tests was made under the same conditions as the first series excepting that the window was locked. Curve 2 shows the leakage for various wind velocities for the locked window. Locking caused a reduction in leakage of 20 cu. ft. per min. with a 14.4 mile wind and 64 cu. ft. per min. with a 45.5 mile wind. The third series of tests was made with the cracks around the sash perimeter, which are subject to weatherstrip application, sealed with a rubberized adhesive tape. This tape was tested and found to be as effective as a plastic calking compound and was more easily and quickly applied and removed. The leakage for this series of tests is given in Curve 3, and the difference between this Curve and Curve 1 or 2 indicates the maximum possible reduction in leakage by a perfect weatherstrip.

Before making the next series of tests the staff bead, or brick mold, was removed and the crack between the frame and the brick wall calked. The brick mold was then replaced. Calking was also applied between the frame sill and the brick. The leakage for this condition is given in Curve 4 and the difference between Curve 4 and Curve 3 gives the leakage between the frame and the wall, commonly called the frame leakage.

In order to determine the elsewhere leakage, a sheet of galvanized iron was fastened by screws over the entire frame and the edges were sealed with calking compound. The leakage for this condition is given in Curve 5. The difference between Curve 4 and Curve 5 is the leakage stopped by the galvanized iron and is the elsewhere leakage.

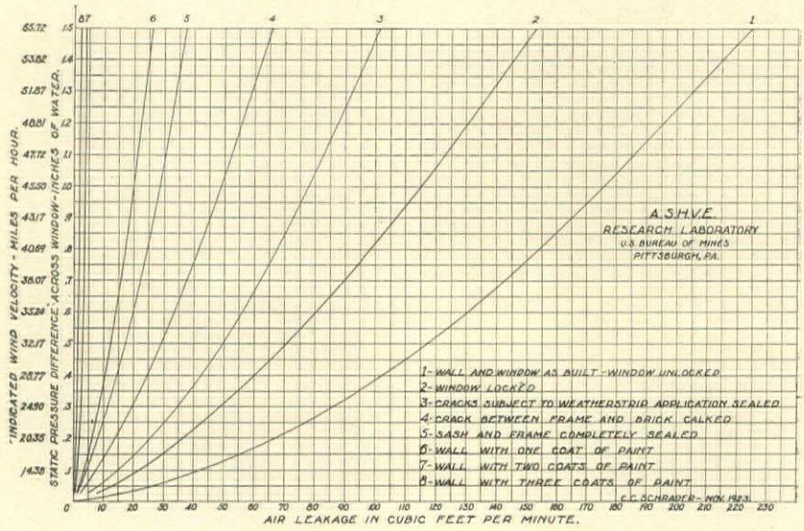


FIG. 6. RESULTS OF TESTS OF LEAKAGE THROUGH VARIOUS PARTS OF WINDOW AND WALL

Curve 5 shows a considerable leakage which does not go through the window opening but through the brick wall and the plaster. To prove that this leakage was really through the brick wall, the wall was painted one coat with asphaltum

paint and another series of tests made. The result of this series is shown in Curve 6. The difference between Curves 5 and 6 represents the leakage stopped by one coat of paint. The wall was then thoroughly inspected and any visible cracks in the mortar closed with calking compound and given second and third coats of paint after each of which additional series of tests were made resulting in Curves 7 and 8, respectively. These curves show the reduction in leakage through the wall by each coat of paint. Another coat of paint was applied later and the leakage through the wall was further reduced to one-half of that shown in Curve 8. The total leakage through the entire wall had been reduced by the various processes from 4.5 cu. ft. per min. to 0.2 cu. ft. per min. for a 14.4 mile wind, and from 28 cu. ft. per min. to 0.9 cu. ft. per min. for a 45.4 mile wind. No doubt further painting would have reduced the leakage still more, but that shown by Curve 8 was so small that it was considered negligible.

With the leakage through the window and wall reduced to a minimum, some special tests were made in order to determine the magnitude of any

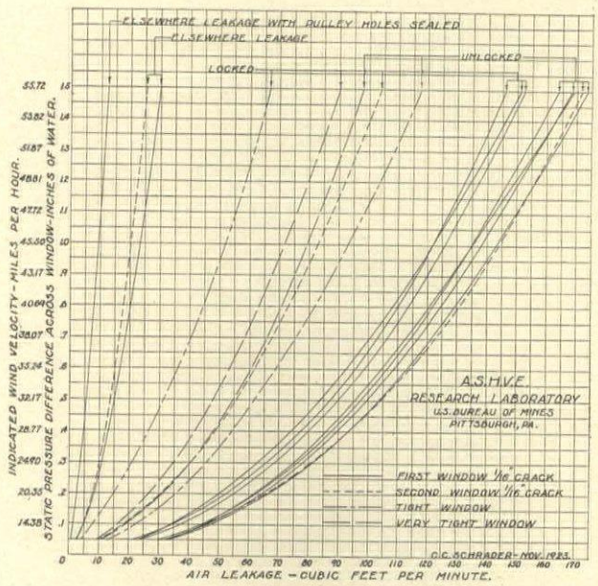


FIG. 7. RESULTS OF TESTS ON WINDOWS WITH VARIOUS CRACKS, SHOWING VARIATION IN LEAKAGE FOR DIFFERENT TESTS ON SAME WINDOW

leakage which might occur from chamber B. The leakage through the wall and window as indicated by the orifice reading is too small by the amount of the leakage from chamber B. While every precaution was taken to eliminate this leakage, it was not possible to do so entirely. However, as shown by the following tests, it was negligible.

When the leakage through the wall as shown by the orifice reading was reduced to a minimum, a pressure drop of 1.5 in. of water through the wall, gave a pressure difference of 0.066 in. between the second chamber or orifice box and the atmosphere when a $\frac{5}{8}$ in. orifice was used. That is, 1.41 cu. ft. per min. passing through the orifice and an unknown amount which we will call x was leaking from the second chamber. The leakage through the wall was then $1.41 + x$ cu. ft. per min. We wish to determine the value of x for all pressures. Since x cu. ft. per min. were passing through minute openings with an orifice pressure p, x is given by the orifice formula as:

$$x = 1096.5\ C\ A \sqrt{\frac{p}{w}} \qquad (2)$$

where the various symbols have the same significance but probably not the same values as given

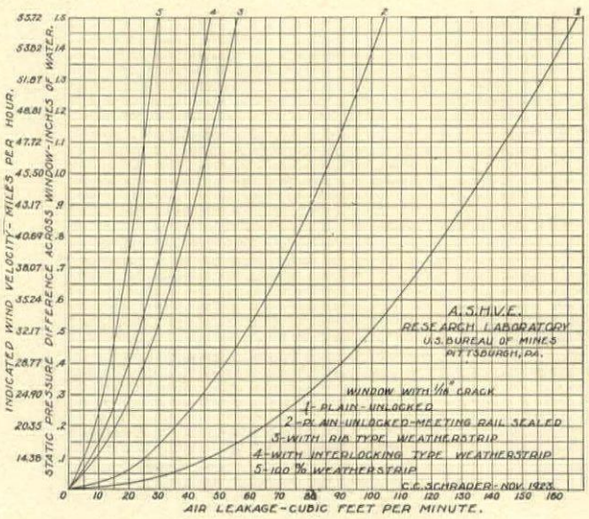


FIG. 8. RESULTS OF TESTS ON WINDOW WITH 1/16" CRACK AROUND PERIMETER

in equation (1). A and C are not known but are constant for the same conditions and w is also constant; A C and w can therefore be included with the numerical constant 1096.5 as K. Our equation then becomes,

$$x = K \sqrt{p} \qquad (3)$$

and the leakage from the second chamber for an orifice pressure of 0.066 in. becomes:

$$x = K \sqrt{.066}$$

The leakage through the wall for any pressure drop may likewise be expressed as:

$$y = K_1 \sqrt{p} \qquad (4)$$

and for a pressure drop of 1.5 in. as,

$$y = K_1 \sqrt{1.5} = 1.41 + K \sqrt{.066} \qquad (5)$$

The orifice was eliminated by using a plate without a hole and the leakage through the wall became equal to that from the second chamber. The pressure drops observed through the wall, and

between the second chamber and atmosphere were 0.045 in. and 0.701 in. respectively; therefore,

$$y = K_1 \sqrt{.045} = x = K \sqrt{.701} \qquad (6)$$

Solving equations (5) and (6) simultaneously gives $K = 0.308$ and the leakage from the second chamber for all pressures becomes,

$$Q = 0.308 \sqrt{p} \qquad (7)$$

This gives a leakage from the second chamber of 0.258 cu. ft. per min. for an orifice pressure of 0.7 in. of water, the maximum used in the tests. This leakage is entirely negligible in comparison with the results obtained.

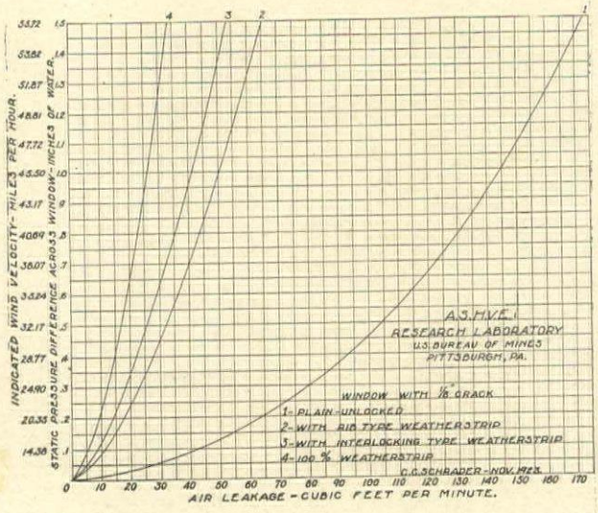


FIG. 9. RESULTS OF TESTS ON WINDOW WITH 1/8" CRACK AROUND PERIMETER

When the galvanized plate was removed and also when the tape was removed from the sash perimeter cracks, tests were made in order to check the decrease in leakage resulting from their application. The calking around the frame and the paint on the wall were not removed after having been applied, so that the curves in all figures after Fig. 6 do not include the frame and wall leakage, and show only the leakage through the window.

Tests on Windows With and Without Weatherstripping

After completing the preliminary series or tests, a large number of tests were made with a number of sash with and without weatherstripping and with various width of crack around the sash perimeter. As was mentioned before the preliminary tests were made with a sash too light for practical purposes. Tests were made with cracks of $\frac{1}{16}$, $\frac{1}{8}$, $\frac{3}{16}$ and $\frac{1}{4}$ in. on both sides, top and bottom of the sash, without weatherstripping and with two types of weatherstripping. The size of the crack was increased to approximate the condition of windows that become loose, as is found in old buildings.

In these tests the sash were often changed and at least two different sash were fitted and tested for each condition. Figs. 4 and 5 show vertical sections of the window with the two types of weatherstripping together with horizontal sections through one side of the sash and frame, and also detailed sections of the various weatherstripped cracks.

The curves in Fig. 7 show the variation in data obtained for different windows fitted in the same way, for the same sash removed and replaced several times; also the leakage for tight windows and the effect of sealing the pulley holes. The five curves for the unlocked window with $\frac{1}{16}$ in. crack show the variation which can be obtained for the same window under different conditions and for a second window fitted as nearly the same as could be done by a carpenter. The greatest variation from the mean of the five series of tests is about four per cent. The variation in the leakage of the same window locked shows the effect that locking may have. The main effect of locking is on the leakage through the meeting rail crack. The lock on the sash giving the three solid line curves was put on by the carpenter in the usual manner. The lock on the sash giving the curve with the short dashes was put on by a

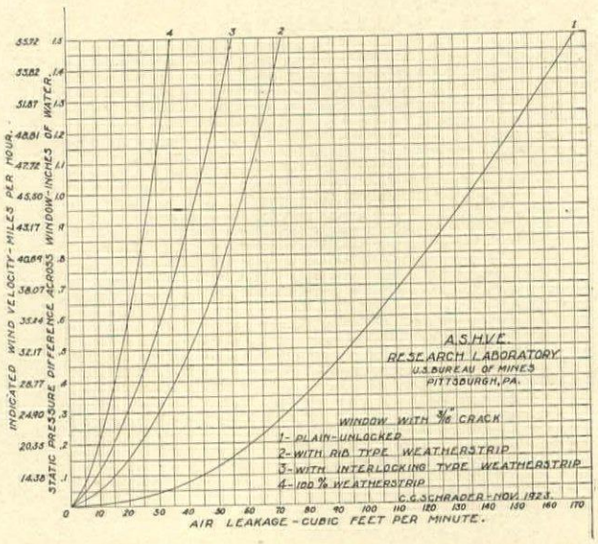


FIG. 10. RESULTS OF TESTS ON WINDOW WITH 3/16" CRACK AROUND PERIMETER

member of the laboratory staff in such a manner as to draw the meeting rails together as tightly as possible. The locks on the weatherstripped windows were put on by the carpenter. Locking caused no reduction in leakage for these windows.

The tight window was fitted so as to allow opening without great difficulty. The very tight window required considerable effort in opening.

In the tests for elsewhere leakage the cracks around the upper sash were sealed on the inside because the weatherstripping was put on the inward side of the pulley holes and thus would not reduce the leakage through these holes. The cracks around the lower sash were sealed on the outside because the weatherstripping was applied near this side of the sash. A series of tests was made in order to determine the percentage of the elsewhere leakage which passed through the outer pulley holes into the weight box and out through the inner holes or through cracks in the frame. Curves in Fig. 7 show that more than half of the elsewhere leakage occurred through these holes.

Figs. 8 to 11 give the results for the various sized cracks without weatherstripping, with two types of weatherstripping, and with 100 per cent weatherstripping, that is, with the cracks subject

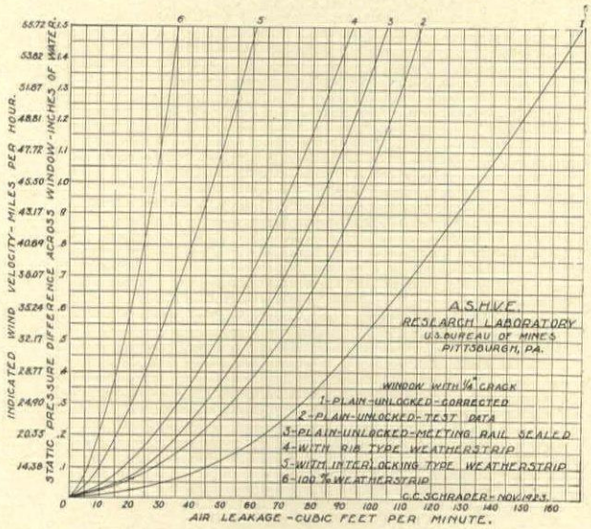


FIG. 11. RESULTS OF TESTS ON WINDOW WITH 1/4" CRACK AROUND PERIMETER

to weatherstrip application sealed up thus allowing only the elsewhere leakage. In each case the curve given is the average of several tests.

The curve for the unlocked window with the ¼ in. crack as obtained from the test data shows less leakage than the same condition with smaller cracks. While this is contrary to what might be expected it can be explained and corrected as outlined in the following paragraphs.

In testing the windows without weatherstripping, the lower sash was pushed down against the sill and the upper sash raised until the meeting rails were even. Because of the construction of the meeting rails, raising the upper sash beyond this point would reduce the crack between them. With the ¼ in. crack and the meeting rails even, it was found that the upper sash would just come up to the edge of the outside stop on the head of the frame. This stop extended ½ in. from the frame. Also, if the sash were not planed off parallel to the head stop, there would be a visible crack. In order to get a test, the conditions of which would compare with the conditions of the preceding tests, the upper sash was raised until it was above the edge of the head stop. By doing this, the crack between the meeting rails was decreased and the resultant leakage was less than that for the smaller cracks. In order to correct for this decrease, a series of tests was made with the crack between the meeting rails sealed. The results of this series are shown in Fig. 11. Curve 2 shows the leakage with the crack between the meeting rails not sealed and Curve 3 the leakage with the same crack sealed. The windows with the $\frac{1}{16}$ in., ⅛ in., and $\frac{5}{16}$ in. cracks were then tested with this crack sealed to determine the leakage between the meeting rails with the members even. The leakage thus found, subtracted from that found without this crack sealed, represents the leakage through it. This proved to be much greater than that found in the tests on the window with ¼ in. crack with the meeting rails uneven. Also it was found to be practically the same for all three windows. An average was taken and the leakage for the window with ¼ in. crack corrected accordingly. Curve 1, Fig. 11, shows the corrected values. The difference between Curves 1 and 2, Fig. 8, shows the leakage between the meeting rails for the window with $\frac{1}{16}$ in. crack. These tests also showed that the leakage for all the windows with the crack between the meeting rails sealed was practically the same.

An examination of the curves for a plain window with different size cracks shows only a small variation for the three smaller ones. Various factors must be taken into consideration to account for this. The thickness of the sash is 1⅜ in. and it slides in a $1\frac{7}{16}$ in. groove. If the sash were held in the middle of this space between the stops there would be a crack $\frac{1}{32}$ in. wide on either side. In this position the smallest crack around the edge of the sash through which air must pass is a maximum. The moment the wind strikes the window it tends to move it against the inside stops, thus increasing the crack on the outside but decreasing the crack on the inside. Since leakage depends largely upon the minimum width of crack around the sash perimeter, it is limited by the tightness with which the sash is forced against the stops. Increasing the width of crack around the edge of the window does not increase the minimum crack width and hence the leakage is not increased measurably.

When weatherstripping is used the window is held in the middle of the groove. The cracks between the members are so much smaller in comparison with the unweatherstripped window that a small variation in this crack will cause a measurable variation in the leakage. The curves

TABLE 1. DATA ON TESTS OF WINDOWS UNDER VARIOUS CONDITIONS

	Leakage C.F.M. Crack Perimeter 18' 4"				B.t.u. per Hour						Radiation on Sq. Ft. 240 B.t.u. per Sq. Ft. per Hour			Lb. of Coal 13,000 B. t. u. Efficiency at 35°-70°Fahr. for Seven Months		Based on and 50% Radiator
					0-70° Fahr.			20-70° Fahr.			0-70° Fahr					
	For total window	Per ft. crack	For total window	Per ft. crack	For total window	Per ft. crack	For total window	Per ft. crack	For total window	Per ft. crack	For total window	Per ft. crack		For total window	Per ft. crack	
Wind velocity M.P.H.	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	14.4	24.9	14.4	24.9	24.9
Plain window—very tight—unlocked	19.0	40.0	1.04	2.18	1445	3040	78.7	166.0	1033	2170	56.3	118.5	6.02	12.67	0.328	0.692	560	1180	30.50	64.3
Plain window — tight — unlocked	22.0	46.0	1.20	2.53	1673	3500	91.3	192.5	1195	2500	65.2	137.5	6.97	14.60	0.381	0.802	648	1357	35.40	74.5
Plain window—$\frac{1}{16}$" to $\frac{1}{4}$" crack—unlocked	46.0	75.0	2.53	4.08	3500	5700	192.5	310.0	2500	4075	137.5	222.0	14.6	23.80	0.802	1.290	1357	2213	74.5	120.5
$\frac{1}{16}$" Crack	9.0	20.0	0.49	1.09	685	1522	37.3	83.0	488	1087	26.6	59.2	2.86	6.34	0.155	0.346	266	590	14.45	32.2
$\frac{1}{8}$" Crack	11.0	22.5	0.60	1.25	837	1710	45.6	95.1	598	1223	32.6	67.9	3.48	7.13	0.190	0.396	324	663	17.70	36.9
$\frac{3}{16}$" Crack	15.0	30.0	0.82	1.63	1141	2282	62.2	124.4	815	1630	44.4	88.8	4.75	9.50	0.259	0.518	442	884	24.10	48.5
$\frac{1}{4}$" Crack	18.0	36.0	0.98	1.96	1370	2740	74.7	149.4	978	1956	53.3	106.6	5.71	11.42	0.311	0.622	531	1062	28.95	57.9
Rib Strip	7.0	16.0	0.38	0.87	533	1218	29.0	66.3	380	870	20.7	47.3	2.22	5.07	0.121	0.276	207	472	11.23	25.7
Interlocking Strip	8.5	18.0	0.46	0.98	647	1370	35.3	74.7	462	978	25.2	53.3	2.69	5.71	0.147	0.311	251	531	13.66	29.0
$\frac{1}{16}$" Crack	9.0	19.5	0.49	1.06	685	1483	37.3	80.9	489	1060	26.6	57.8	2.85	6.18	0.155	0.337	266	575	14.45	31.4
$\frac{1}{4}$" Crack	10.0	20.5	0.55	1.12	761	1560	41.4	85.0	543	1114	29.6	60.7	3.17	6.50	0.173	0.354	295	605	16.08	32.9

TABLE 2. LEAKAGE IN C.F.M.

Wind Velocity M. P. H.	Frame 17 Ft. Perimeter		Wall per Sq. Ft.	Elsewhere	Window with $\frac{1}{16}$ In. Crack				Perimeter 18 Ft. 4 In.				
					Plain		Rib strip		Interlocking Strip				
	For total window	Per ft. crack			For total window	Per ft. crack	For total window	Per ft. crack	For total window	Per ft. crack			Per ft. crack
5	0.50	0.0294	0.0111	0.7	15.0	0.818	1.3	0.071	1.0				0.0546
7.5	2.3	0.1325	0.0289	1.8	24.0	1.31	3.0	0.164	2.2				0.1200
10	4.0	0.2350	0.0513	2.8	32.5	1.77	5.0	0.273	4.0				0.2180
15	8.0	0.4710	0.1110	5.2	47.5	2.59	9.7	0.529	7.8				0.4360
20	11.0	0.6470	0.1780	7.6	61.5	3.36	14.8	0.808	11.8				0.6440
30	19.0	1.1180	0.3330	13.6	89.0	4.86	25.5	1.390	20.0				1.0920
40	25.5	1.5000	0.5250	20.0	118.0	6.44	37.0	2.020	30.0				1.6380
50	31.5	1.8530	0.7150	26.0	149.0	8.13	48.5	2.650	41.0				2.2400

for the weatherstripped windows show a corresponding increase with size of crack.

Tables 1 and 2 contain data taken from the curves Figs. 6 to 11 or resulting therefrom. Table 1 gives the leakage in cubic feet per minute for the whole window and per linear foot to crack, for wind velocities of 14.4 and 24.9 mile per hour. It is of interest to note that for a plain window with crack varying from $\frac{1}{16}$ to $\frac{1}{4}$ in. the leakage is 46 cu. ft. per min., while for the two types of weatherstripping tested it varies from 9 to 18 and 7 to 10 cu. ft. per min. respectively. The heat loss is given for two temperature differences. The heat loss for any temperature difference varies directly as the leakage. The radiation required to supply this heat loss is given for the higher temperature difference only, since it must be supplied for the maximum condition. With a 14.4 mile wind based upon the above temperature difference the unweatherstripped windows with cracks varying from $\frac{1}{16}$ to $\frac{1}{4}$ in. required 14.6 sq. ft. of radiation, while the same windows with the two types of weatherstripping require only from 2.8 to 5.7 and 2.2 to 3.2 sq. ft. respectively. Basing the cost of radiation on $2.00 per sq. ft. installed, the two types of weatherstripping will show a resulting decrease in first cost of radiation of about $18.00 and $23.00 per window respectively. The further saving in coal per year based upon a seven month heating season with an average temperature difference of 35 deg. is also given.

Table 2 gives the elsewhere, wall, and frame leakage, and also the leakage through the window with and without weatherstripping for various wind velocities.

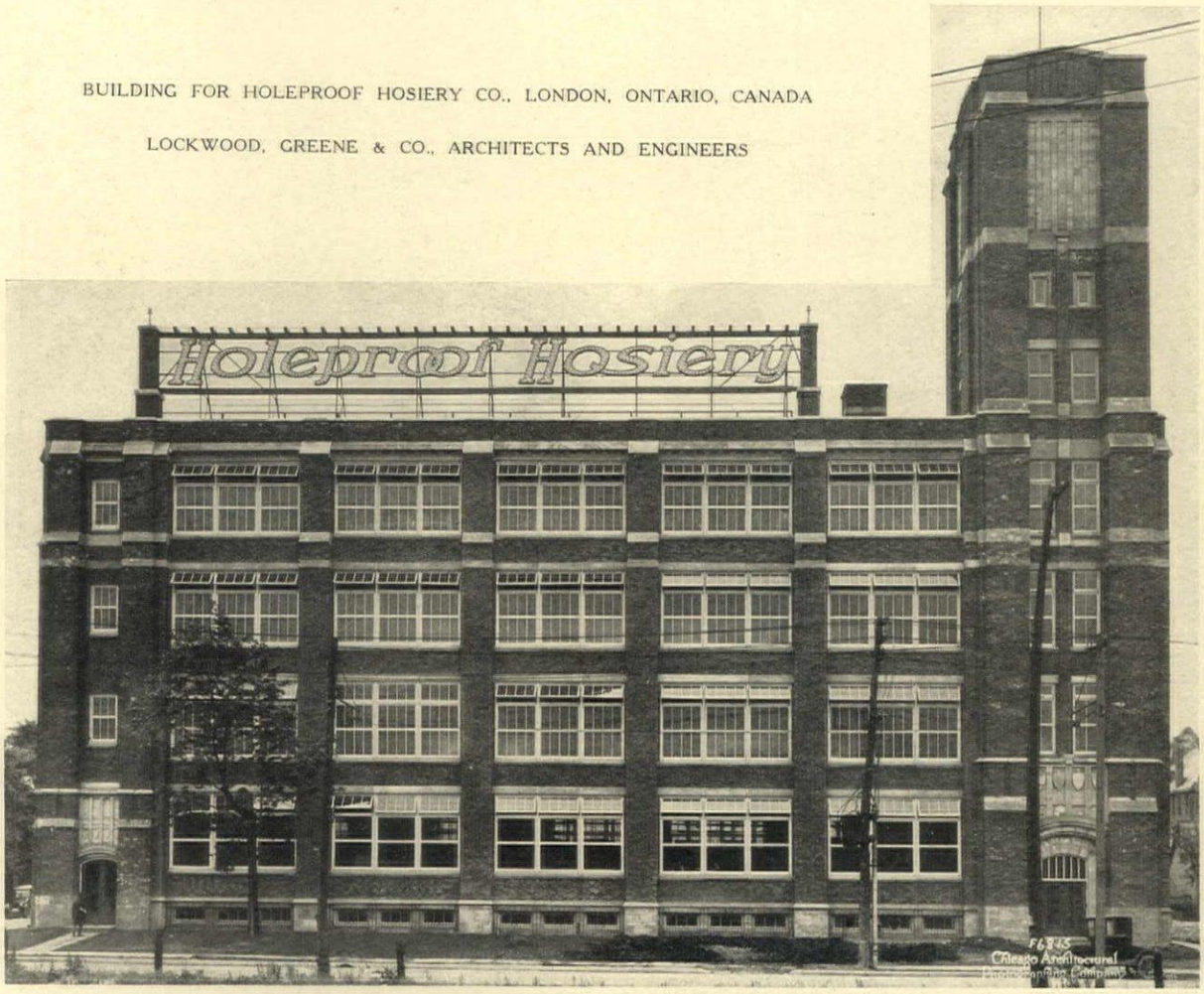
Perhaps the most surprising fact brought out by this table, if not by the whole investigation, is the leakage per square foot of wall. With a 15 mile wind each square foot of the 13 in. wall, plastered on the inside, allowed the passage of 0.111 cu. ft. of air per min., while the leakage through the window and frame for the same wind velocity was 47.5, 9.7, and 7.8 cu. ft. per min. for the plain window and two types of weatherstripping respectively. The area of the window and frame is 16.25 sq. ft. giving a leakage of 2.82, 0.597 and 0.48 cu. ft. per min. per sq. ft. of window without and with the two types of weatherstripping. Based upon these figures the leakage through the window and frame varies from 4 to 28 times that through the same area of wall. When we take into consideration the usual greater area of wall to window, it is evident that the leakage into a room is usually

greater through the wall than through the window if weatherstripped, and not many times less if not weatherstripped. It is of interest to compare the heat loss through windows and walls by transmission and by leakage. The leakage for the plain window and with two types of weatherstripping all for 1/16 in. crack and a 15 mile wind is 47.5, 9.7, and 7.8 cu. ft. per min. respectively, representing a heat loss of 2580, 527, and 423 B.t.u. per hr. respectively for a 50 deg. temperature difference. A leakage of 0.111 cu. ft. per min. per sq. ft. of wall represents a heat loss of 6.03 B.t.u. per hr. for a 50 deg. temperature difference. Taking the transmission through the wall as 0.28 B.t.u. per hr. per sq. ft. per degree temperature difference, this loss is 14 B.t.u. per hr. for the same temperature difference. The heat loss as thus indicated by infiltration is 43 per cent as great as the heat loss by transmission as indicated by the constant use.

The values given in the table are from the tests as made and are probably somewhat higher than those actually found in practice. They represent the leakage when the pressure drop through the window is a certain value which represents a definite wind velocity at right angles to the window. If the wind strikes the window at an oblique angle the component of the velocity at right angles to the window must be considered. Pressure difference between the outside and the inside surfaces of the window for an actual wind will be slightly less for a given velocity because of a building up of pressure within the room before the air leaks out the opposite side of the building. Attention is called to the fact that air leaks in on the windward side of the building and out on the leeward side and, since the wind will blow from various directions at different times, heating for any room having only one exposure must be based on the maximum loss. The heating plant, however, need not be figured on the sum of all maximum leakages but in general only half of the total. However, the tables give accurate comparative figures which are probably not much too high for actual practice. In order to apply these values, a further study of the overall results as found in practice should be made, and the figures modified, if necessary, to fit practical conditions.

BUILDING FOR HOLEPROOF HOSIERY CO., LONDON, ONTARIO, CANADA

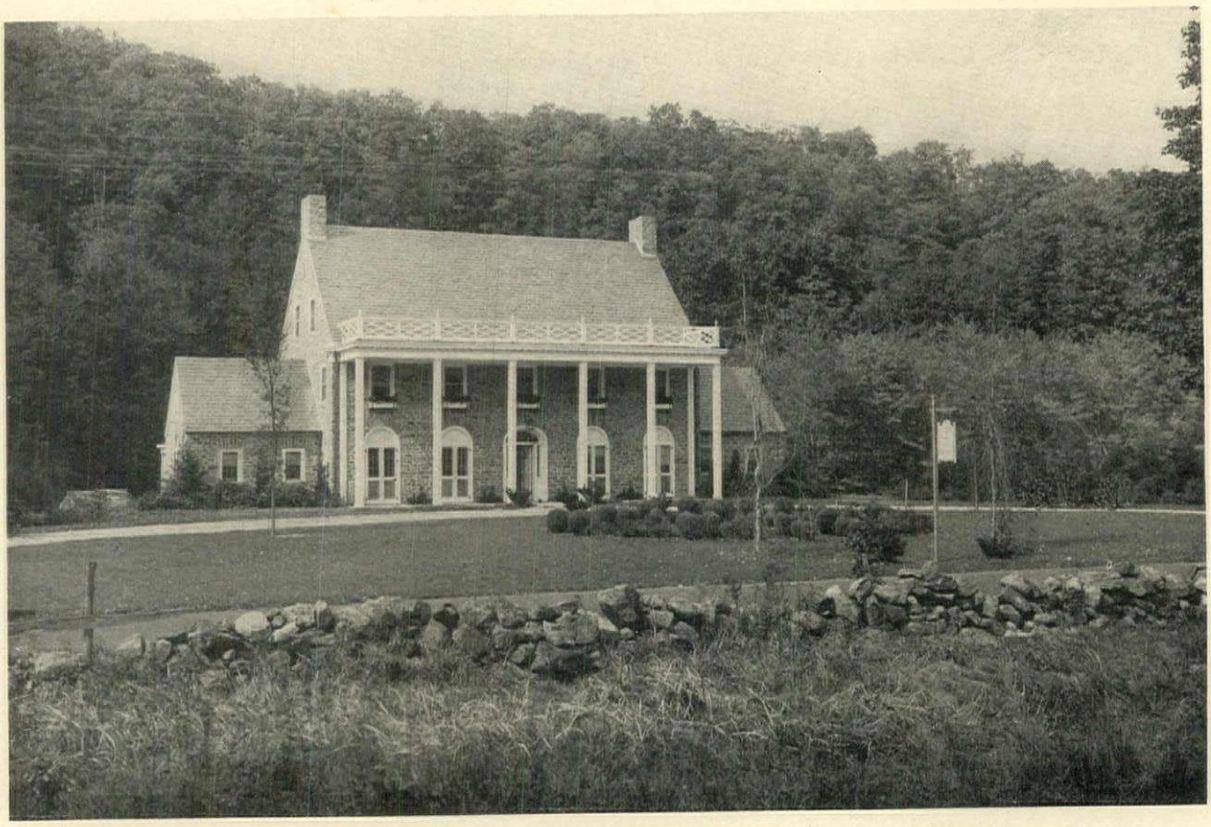
LOCKWOOD, GREENE & CO., ARCHITECTS AND ENGINEERS



BRIDGE IN CEMETERY OF THE GATE OF HEAVEN, MOUNT PLEASANT, N. Y.

CHARLES WELLFORD LEAVITT & SON, LANDSCAPE ENGINEERS

The architectural style follows that of other features in this cemetery



OFFICE BUILDING, OUTPOST FARM AND NURSERIES, RIDGEFIELD, CONN.

ROBERT J. REILEY, ARCHITECT

Local field stone with white pine trim; Virgin pearl black slate roof

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

BEAUX-ARTS INSTITUTE *of* DESIGN

ACTING DIRECTOR OF THE INSTITUTE—WHITNEY WARREN
ARCHITECTURE—RAYMOND M. HOOD, DIRECTOR
SCULPTURE—EDWARD FIELD SANFORD, JR., DIRECTOR INTERIOR DECORATION—FRANCIS LENYGON, DIRECTOR
MURAL PAINTING—ERNEST C. PEIXOTTO, DIRECTOR

OFFICIAL NOTIFICATION OF AWARDS

JUDGMENT OF JANUARY 8, 1924

CLASS "A"—II ESQUISSE-ESQUISSE
"AN AEROPLANE RECEPTION STATION"

It will soon be customary for people to cross the ocean by aeroplane, and among the foreigners visiting us, there will always be a number of distinguished persons, such as have heretofore been met at their arrival by special representatives of the Government. For these it is proposed to erect a special reception pavilion on a landing field near a great city

The landing field is a flat plateau, from which the ground slopes gently toward a great river. On the edge of the field, overlooking the river is the site for the pavilion. Between the river and the pavilion, the ground will be laid out in a formal garden treatment. The formal treatment will include an esplanade and a space for the parking of motor cars, while at the bottom of the slope at the river's edge will be a dock for steamers or yachts that may occasionally take the aeroplane passengers to their final destination. The pavilion to which the arriving guests will go directly should contain a main reception room, two or three private retiring rooms, and the other necessary services for the press, telephone, etc.

The treatment of the entire composition will be of a very dignified and rather formal design in view of its distinguished function, and emphasis should be placed on the fact that its appearance and disposition as seen from the sky is of almost primary importance.

The entire piece of ground to be disposed of in this composition, exclusive of the landing field, measures 750′-0″ in a direction parallel to the river and 1000′-0″ from the edge of the landing field to the river.

CLASS "B"-II ESQUISSE-ESQUISSE
"A COLLEGE MEMORIAL GATEWAY"

A college in a medium sized city has received a gift of funds to build a memorial gateway, facing the highroad.

The Deed of Gift recites that "the design of the entrance shall include a clock tower."

No further condition is legally imposed, so the following program is issued by the University:—

The entrance shall consist of a gateway not more than 15′-0″ wide, closed with iron gates, or if preferred, two gates each about 10′-0″ wide. The clock tower can thus be placed in the center or on one side.

The general line of the face of the tower and gateway must be at least 12′-0″ back from the line of the college wall along the highway. It shall be connected with it by curved or broken pieces of wall or wings. This places the gateway in a sinkage in the college wall. The tower should not be more than 8′-0″ in plan in any dimension. The entire motif, including the wing walls, shall not exceed 60′-0″ in length along the highroad.

JURY OF AWARDS:—R. M. Hood, W. Warren, B. W. Morris, H. O. Milliken, E. S. Hewitt, W. E. Shepherd, Jr., J. C. Levi, C. Mackenzie, G. P. Butler, F. C. Hirons, H. Sternfeld, and C. Grapin.

NUMBER OF DRAWINGS SUBMITTED:—111.

AWARDS:—

FIRST MENTION:—J. E. Miller, Catholic Univ., Wash., D. C.; A. E. Klueppelberg, Columbia Univ., N. Y. C.; E. Cacchione, "T" Square Club, Philadelphia.

SECOND MENTION:—T. Locraft, Catholic Univ., Wash., D. C.; L. Moore, Columbia Univ., N. Y. C.; J. G. Beckman, Los Angeles Archtl. Club, Los Angeles; G. Rustay, Pennsylvania State College—Dept. of Archt., State College; W. R. Harer and J. E. Jackson, "T" Square Club, Philadelphia; H. F. Pfeiffer, Univ. of Illinois, Urbana; M. B. Smith, C. J. Hill and S. C. Haight, Yale Univ., New Haven.

CLASS "A" AND "B" ARCHAEOLOGY—II PROJET
"THE INTERIOR OF AN EARLY CHRISTIAN CHURCH"

The early Christian churches had simple exteriors, but the interiors were carried to a high degree of elaboration by the use of marbles and mosaics. The clerestory walls of the nave were supported by marble columns, and the ceiling above was either of flat panelling or of open timber trusses, treated in color. The altar was usually placed in a huge niche forming the end of the nave, and it was here that the decorations were the most elaborate.

This problem calls for the treatment of the altar end of an early Christian Church. The nave is 35′-0″ wide, and the aisles at either side about one-half that width.

The attention of the student is called to the Churches of St. John Lateran, St. Paul beyond the Walls, and Ste. Marie Maggiore, in Rome; to Ste. Apollinaire in Ravenna; and to the Capello Palatino and Monreale in Palermo. He should particularly note the use of marble panels, the mosaic figure designs and the carved inlaid marble altars and pulpits.

JURY OF AWARD:—R. M. Hood, W. Warren, B. W. Morris, J. C. Levi, G. P. Butler, F. C. Hirons, H. Sternfeld and C. Grapin.

NUMBER OF DRAWINGS SUBMITTED:—28.

AWARDS:—

SECOND MEDAL:—Olive Betts and T. M. Prentice, Columbia Univ., N. Y. C.; L. K. Levy, Georgia Sch. of Tech., Atlanta; F. T. Ahlson, Atelier Parsons—Chicago Archtl. Club, Chicago; H. H. Weeks, San Francisco Archtl. Club, San Francisco; N. N. Rice and S. K. Lichty, Univ. of Pennsylvania, Philadelphia.

MENTION:—S. M. Shaw, S. Gerson, A. M. Dick, W. Conley, and R. Gottlieb, Columbia Univ., N. Y. C.; R. C. Danis, Catholic Univ., Wash., D. C.; F. J. Roorda, Cincinnati Archtl. Society, Cincinnati; W. H. Speer, Atelier Denver, Denver; G. C. Sponsler, Jr., Atelier Kast, Harrisburg, Pa.; J. H. Devitt, San Francisco Archtl. Club, San Francisco; C. Ferris, C. I. Cromwell and H. A. King, Syracuse Univ., Syracuse; W. Foster, Jr., and S. Terrell, Univ. of Texas, Austin.

MEASURED DRAWINGS

JURY OF AWARDS:—R. M. Hood, H. O. Milliken, B. W. Morris, E. S. Hewitt, C. Mackenzie, F. C. Hirons, H. Sternfeld and C. Grapin.

NUMBER OF DRAWINGS SUBMITTED:—5.

SUBJECT:—Peabody Silsbee House, Salem, Mass.

AWARD:—SECOND MEDAL:—H. A. King, Syracuse Univ., Syracuse.

SUBJECT:—Perry Hill Inn, near Oswego, N. Y.

AWARD:—SECOND MEDAL:—J. S. Palmer, Syracuse Univ., Syracuse.

SUBJECT:—Maple Hill Residence, Geneva, N. Y.

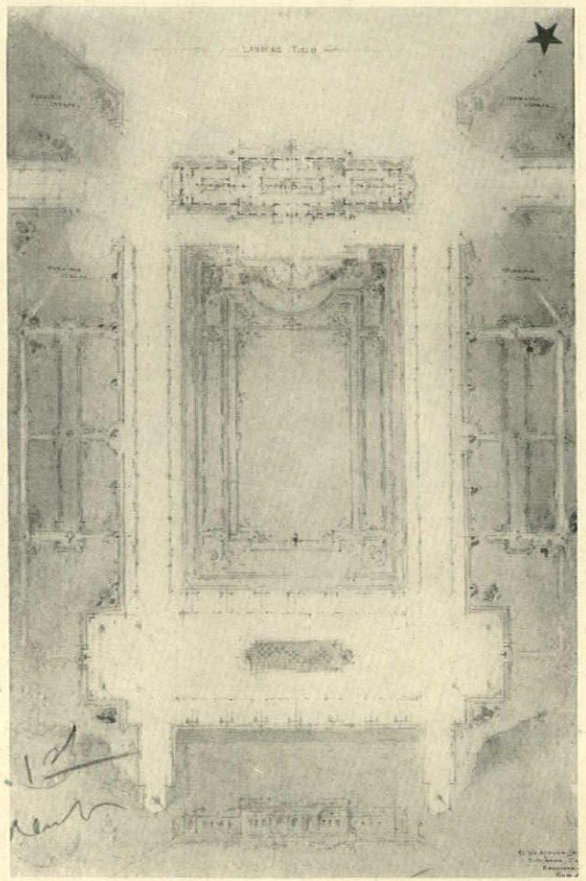
AWARD:—SECOND MEDAL:—R. Bridges, Syracuse Univ., Syracuse.

SUBJECT:—The Bassett House, New Haven, Conn.

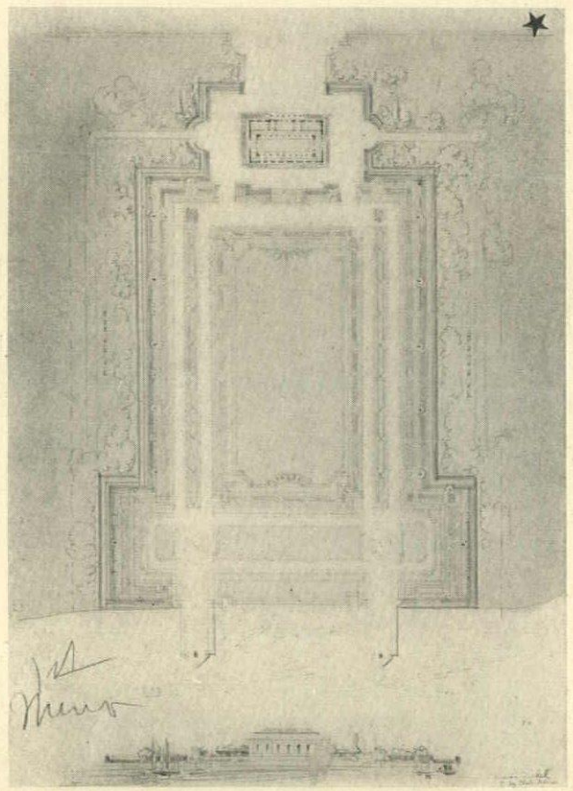
AWARD:—SECOND MEDAL:—P. E. Isbell, Yale Univ., New Haven.

SUBJECT:—Dr. Hun Residence, Albany, N. Y.

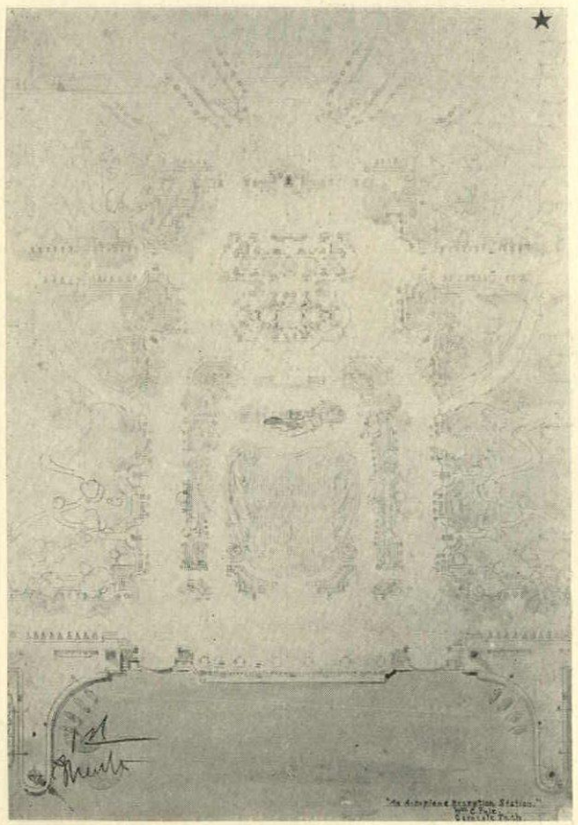
AWARD:—MENTION:—C. Ferris, Syracuse Univ., Syracuse.



A. WESTOVER, JR. "T" SQUARE CLUB
FIRST MENTION



R. NICKEL "T" SQUARE CLUB
FIRST MENTION



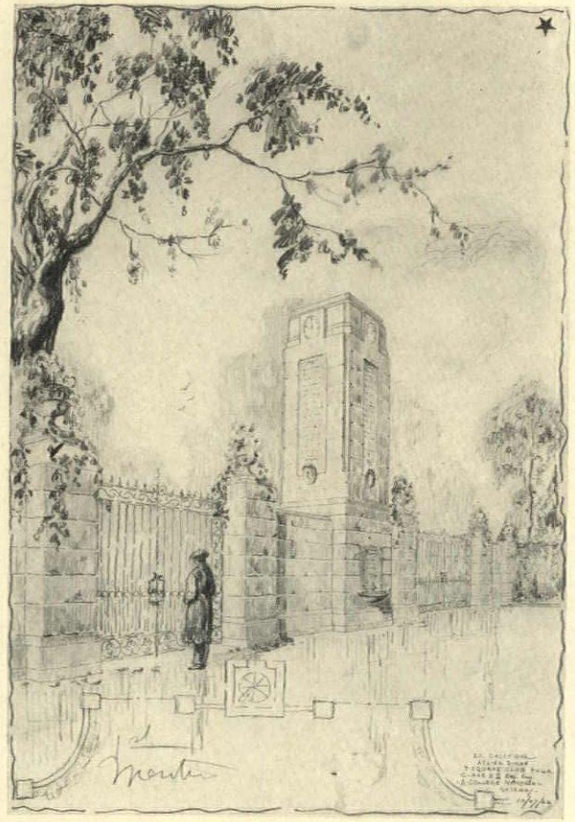
W. C. PYLE CARNEGIE INSTITUTE
FIRST MENTION

CLASS "A"–II ESQUISSE-ESQUISSE—AN AEROPLANE RECEPTION STATION

STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

J. E. MILLER CATHOLIC UNIVERSITY
FIRST MENTION

A. E. KLUEPPELBERG COLUMBIA UNIVERSITY
FIRST MENTION

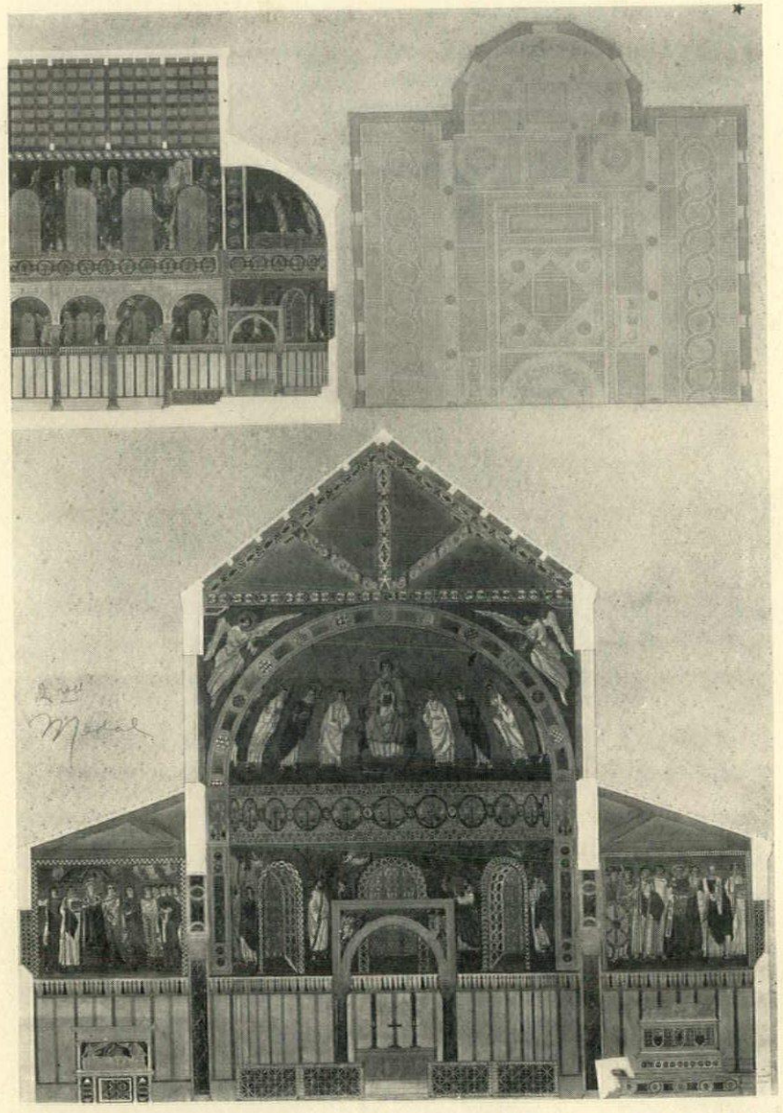


E. CACCHIONE "T" SQUARE CLUB
FIRST MENTION

CLASS "B"—II ESQUISSE-ESQUISSE—A COLLEGE MEMORIAL GATEWAY

STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

S. K. LICHTY SECOND MEDAL UNIV. OF PENN.



L. K. LEVY SECOND MEDAL GEORGIA SCHOOL OF TECH.

CLASS "A" AND "B" ARCHAEOLOGY–II PROJET—THE INTERIOR OF AN EARLY CHRISTIAN CHURCH

STUDENT WORK, BEAUX-ARTS INSTITUTE OF DESIGN

SPECIFICATIONS

BRICK MASONRY SPECIFICATIONS (*Continued*)

THE suggestions in the last discussion of specifications having to do with the laying of common brick covered the general items that should be specified for general requirements. Every building will have miscellaneous masonry items in many cases peculiar to the character of the building, all of which must be constructed of common brick. For instance, the rough construction for fireplaces, brick fireproofing or covering for structural columns, brick lining or protection for membranous waterproofing, and in some cases, brick flooring. It is probable that in every case the general specifications would be sufficiently clear to cover each of such peculiar items, but if there is anything special that must be made more clear, the specification writer should include it under the general heading, "Laying of Common Brick" unless it appears more reasonable to make a separate caption for fireplaces or other special conditions. Perhaps the only point that will be general in all of these spaces is the selection of mortar, which, of course, involves the exercise of good judgment as to the character of mortar required for the particular instance.

After specifications have covered the laying of common brick, it would seem logical to specify next the laying up of face brick. Mention has already been made of the usefulness of sample panels showing face brick as it is proposed to lay them up. In general, this question will be determined either by the design or by the specifications covering the layup of the sample panels, unless the specification writer desires to restrict his specifications for the sample panels to their requirement only, thus leaving the layup and other desiderati to be determined by the drawings or by the specifications for the general face brick work. Under the caption of "Laying of Face Brick," the kind of mortar that is to be used for face brick in various positions must be specified. Care must be taken to see that if the specifier has elected to use a particular kind of mortar for the laying up of brick in parapet walls or in piers of which the face brick will become an integral part in so far as strength is concerned, he will also specify the same kind of mortar for the face brick. In some cases, especially where an extra wide joint is desired, the face brick may not be bonded with the backing brick because of the variation in joint levels. In such cases even though the face brick then is separated from the backing brick and is not thoroughly bonded to it except as a tie to hold it in a veneering position, it would be well to specify the same kind of mortar with the heavier sand or fine aggregates for the body in order to maintain the settlement in the joints as nearly equal as possible. If mortar is to be colored, it should be so stated here and where more than one color is to be used, the specification must be as explicit as in the choice of mortar for different purposes.

In all cases the kind of bonding desired must be specified, governed of course by the design drawings. If the drawings are quite complete, reference may be made to such indications without further detail, but if there is an incomplete indication on the drawings the specifications must supply the deficiency, as the costs in laying up face brick are so variable that the contractor bidding on the work and his foreman on the job must know all of the particulars unless, as stated above, this is covered under the specifications for sample panels. The choice of bonds sometimes involves the question as to kind of bond that will be used to tie the face brick to the backing. Where straight running bond is desired without headers, blind headers must be used unless the cheaper method of using brick ties is resorted to. Nothing can be said against the use of brick ties unless the full strength of the wall must depend on the masonry bond between the face brick and the backing brick,—a matter which does not obtain in the majority of face brick usages. If blind headers are desired they must be specified, especially if not distinctly shown on the drawings, as their use is expensive and ordinarily the contractor does not like to use this method unless it is a part of his contract. In all events the specifications must be explicit as to the means by which the face brick is to be bonded to the backing brick. Where face brick is to cover concrete such as spandrels, foundation walls projecting above the grade, or similar situations, it is customary to provide metal ties in the form work before the concrete is poured to tie the face brick to these surfaces.

The specifications for laying up of face brick do not involve very much other than the kind of mortar and the bonding and joints that are desired. The brick, of course, must be laid level and true to line with vertical joints plumb. If from aesthetic standpoints the alignment of the brick is not an especial point, or if brick out of line are desired, the specifications should be somewhat more explicit, but it is reasonable to presume that the wall will be carried up plumb and with the beds of the brick generally level unless a batter is shown on the drawings. In the more ornamental bonding of face brick the specifica-

tions should require that fractional brick be cut accurately and that the start of a course be made at an opening or on the center line with the working out of the vertical joints according to the dimensions of the horizontal runs. Where piers or other breaks or returns are encountered, the internal angle should not show a joint running straight up from bottom to top, but the jointing of the brick should be made alternately one abutting the other so that the internal angle will be broken showing the joint first on one face and in the adjacent courses on the other or intersecting face. The thickness of joint selected must be adhered to and where the thickness of joint selected does not work out exactly with the heights of openings or their predetermined heights, the courses should be laid out on a pole so that the adjustment or variation in thicknesses of joints may be made as the work progresses, rather than to wait until the masonry is carried up to within a foot or two feet of the top, thus entailing the rapid curtailment of joint thicknesses.

As with the common brickwork the laying up of face brick involves mantel facings, floors, and numerous other spaces or materials more particularly requiring experienced workmanship in every respect. It may be necessary that the specifications stress any peculiarity that occurs to the specifier, but he should be careful to make sure that his desires may be accomplished without difficulty, taking into consideration the size of the brick, the possible tolerances that must be allowed for in sizes and the kind of mortar that is to be used.

The character of joint for face brick is more particular than for common brick. Joints may be weathered, rough cut or struck, V-grooved, raked, or recessed. The selection of joints in face brick generally is determined when the character of bond and color of brick as well as the color of mortar are selected. A weathered joint of course must be struck with the intonation extending inwardly and upwardly from the bottom of the joint, and not, as so frequently happens, inwardly and downwardly from the top of the joint, thus leaving a slight shelf for the accumulation of water. It is not believed that the specifications must be so explicit. It should be sufficient to specify a weathered joint and the specifications then must be interpreted properly by the superintendent who must see that the correct weathered joint is used. As a matter of fact, it is not possible to see how the other kind of joint could be called a "weathered" joint. For rough cut or struck joints, the specifications should be sufficiently explicit if merely the desired term is used, providing, of course, that local usage will give it the correct interpretation. The V-grooved joint is used a very great deal in cheap construction, but it is a horrible looking joint and should be prohibited by the careful architect unless enameled brick are used laid in narrow joints and also if the architect is certain a metal tool and not the edge of a wood ground will be used for forming the V. For recessed or raked joints, both of which are quite expensive to produce, the kind of mortar to be used and the thickness of joints must be carefully studied so that after the joint is formed, the mortar will be sufficiently stiff and will set fast enough not to delay the work, and still at the same time hold the brick in perfect alignment horizontally. A common fault found in construction work in this connection is the slippage of the brick outwardly because of the mortar not being stiff enough to hold it in position after the joints have been raked or after the wood strips used in recessed joints have been removed. As a matter of precaution the specifications should require that joints should not be raked or the joint strips removed until six or eight courses have been laid, thus keeping at least that number of courses unfinished while work is progressing upward.

The question of making parapet walls watertight, which will be discussed later, involves careful specifications for the laying up of the face brickwork, especially where a wide joint or a recessed or raked joint is to be used. There may be instances where it is desirable to use elastic cement for pointing the outer face of the joints. Also, if brick sills are to be used and these generally occur in face brickwork, common practice is to lay them in cement mortar, but experience has proved that in many cases, cement mortar in itself cannot be depended upon to maintain intimate contact with the brick. Therefore, it is recommended that elastic cement of a color matching the mortar used for the face brick surrounding the sills, be used to point the outer inch of the vertical exposed and the outward exposed joints and sills. The same question may enter in the construction of wide belt or string courses, or the first course in a residence where it is placed close to the ground. It is presumed, of course, that masonry work laid on foundation walls should be laid on cement mortar, or shall have an intervening course of slate, stone, or other impervious material to prevent the passage of moisture by capillary attraction from the foundation to the brick masonry. The specification writer should analyze the exterior exposures of the face brick very carefully, not alone from the standpoint of initial strength and stability, but also from the standpoint of future weathering. This is particularly urgent in localities having a normal high moisture content in the air, and where rains are usually of the driving kind. One additional point in this respect is the construction of the face brick over windows where they are supported by steel lintels. One case comes to mind where a gauged

cement mortar was used (and probably the gauging was quite generous) and after the building had been occupied for about two years, it was discovered that water was leaking in through the tops of wood window frames, through the brick joints in the course resting on the angle lintel. It was discovered that the water was passing down the face of the brick over the horizontal leg of the angle and back to the end of the angle, which was 4″ in from the reveal of the window, from which point it was easy to get back on the head of the window at the corner and come down in the weight box of the double hung sash. This situation was corrected by resetting the brick in rich cement mortar but if elastic cement was used at that time as it is used now, it is probable that the outer inch of the joints would have been caulked with this material at much less expense.

While it may seem rather trivial for the specification to require that all green masonry walls be braced during construction, this is a very important point that should be specified under a special caption for its proper emphasis. Instances are known where walls have been blown down by sudden squalls and in each case the difficulty arose not so much because the wall was blown down, but because of damage that was done to the structure in place, all of which could have been prevented by the placing of wood bracing as the wall was built. Although the specifications require that the brick masonry work be erected, it is well to require precautions of this character, especially where the length of the wall is greater than twice its height between masonry bracing walls.

One precaution in the laying of brickwork that might be given some thought, especially in localities where extremely hot days occur, is the need for keeping the masonry wall damp during extremely hot weather, especially where the humidity is low. At such times the contractor will, of course, drench the brick before being laid in the wall, but it is not unusual to find the heat so intense that the moisture is taken from the mortar before it has had time to attain its proper set. Under such conditions fine cracks occur in the joints and while they may not involve damage to the joint, the question may come up—especially from the owner's viewpoint—and he may be led to believe that the mortar is not sufficiently well made or cured to give him a substantial, well bonded wall. In a similar situation it was only after several days of unceasing argument that the owner was persuaded that the fine hair cracks had no effect on the mortar and it would be unnecessary to have a great deal of masonry work torn down and rebuilt. So, the careful specification writer should include some precaution respecting the handling of constructed walls in extremely hot weather.

Miscellaneous Data

Resistance to Weathering:—Slate consists essentially of insoluble and stable minerals that will withstand weathering for hundreds of years. However, small percentages of less resistant minerals may be present. Calcium magnesium or iron carbonates are slowly soluble in water containing carbon dioxide, and their presence may hasten deterioration. As a rule, a determination of the carbonate present would indicate fairly well the probable resistance of slate to weathering when exposed on a roof. Some slate in Pennsylvania contains ribbons which consist of narrow original beds usually containing carbon, and darker in color than the main body. There is a tendency for some ribbons to contain an excessive amount of the less resistant minerals and they should not appear on exposed surfaces.

Color Stability:—Slate colors may be fast or changing. The fast colors are due in the main to the presence of iron oxide and other stable oxides. As indicated in the preceding paragraph a change in the color may be due to the oxidation of disseminated carbonates. The terms "fading" and "unfading" are unfortunate, as fading always conveys the impression of inferiority. In some instances the change in color is quite undesirable, in others very pleasing tones of color result. The terms "fast" and "changing" are more appropriate.

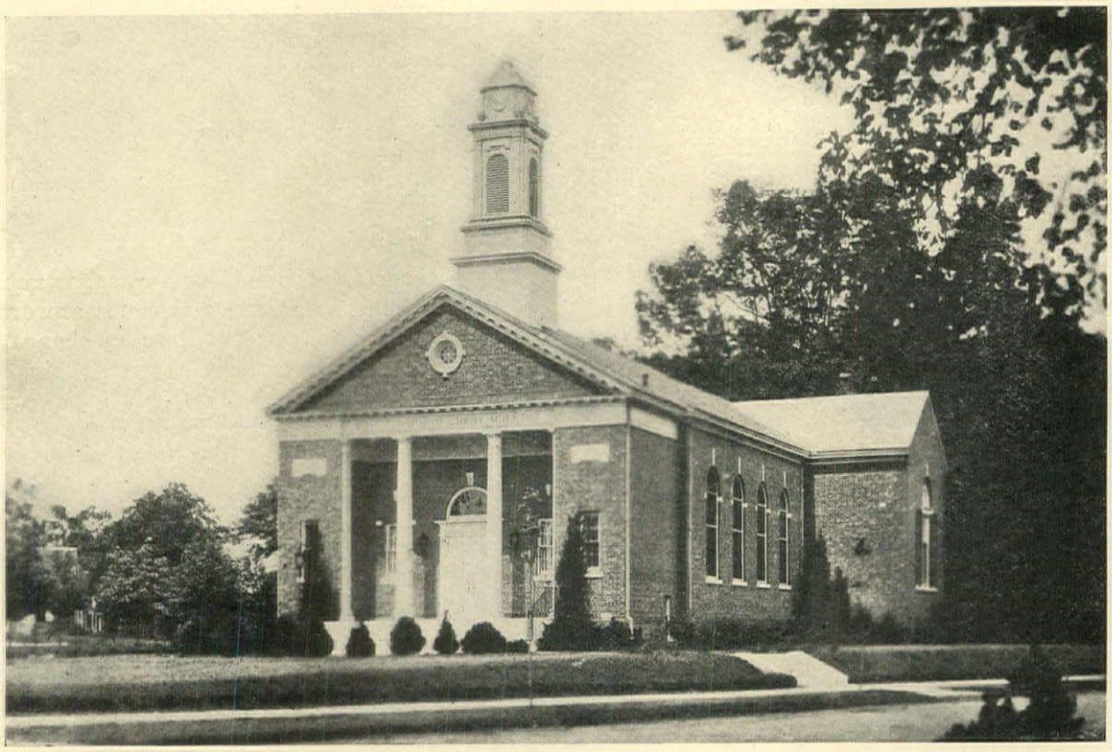
Spots and blotches are of common occurrence in the slates of Vermont and New York. Careful chemical and microscopic studies as recorded by Dale indicate that variations in color are due to differences in the proportion of carbonates, pyrite and hematite present. It is probable that decaying organisms embedded in the original shale have reduced the Fe_2O_3 to FeO, and the latter has been removed in solution. Usually in the centers of the spots there is an excess of carbonate which may have originated from the shells of the organisms. In general the spots are permanent features that are practically as stable and unchanging as the colors in the main body of the slate.

The oxidation of iron carbonate or of the mixed carbonates of iron, lime or magnesia may cause rusty stains. If the carbonates are evenly distributed they may on weathering change the general color of the entire surface. Stains are also caused by the oxidation of iron pyrite. However, the presence of pyrite is not a sure indication that the slate will stain upon exposure, for some forms of pyrite will remain unaltered for many years. The whole question of the oxidation of pyrite in building stones has been fully discussed by the author in another publication.

Strength: As slate consists largely of overlapping scales firmly cemented under intense pressure, it is remarkably strong. If slates are not split excessively thin they possess sufficient strength for any roofing demands.

GARDEN APARTMENTS, JACKSON HEIGHTS, N. Y.

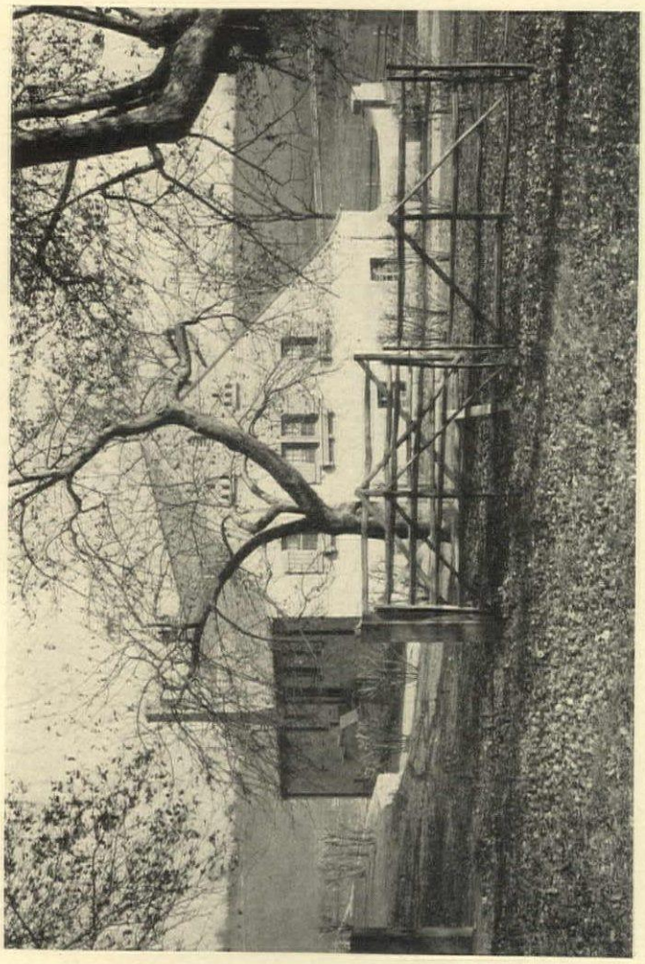
G. H. WELLS, ARCHITECT



FIRST CHURCH OF CHRIST SCIENTIST, MERIDEN, CONN.

ORR & DEL GRELLA, ARCHITECTS—LORENZO HAMILTON, ASSOCIATED

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

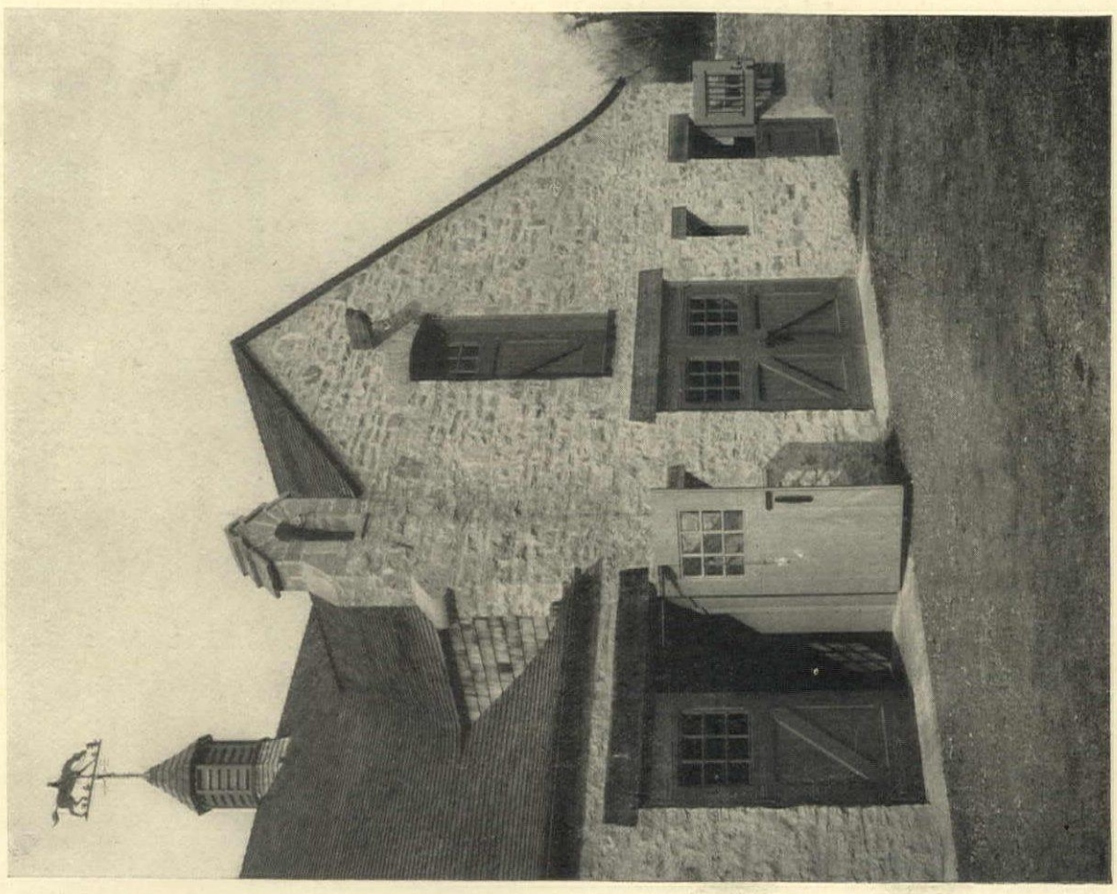


GARAGE AND STABLE OF RICHARD B. DUANE, BRYN MAWR, PA.

LUCIAN E. SMITH, ARCHITECT

Stone covered with a buff colored wash. Natural wood lintels. Grey-blue doors and trim

(Thirty-ninth Annual Exhibition, The Architectural League of New York)



SOUTH ELEVATION

HOUSE OF CHARLES SMITHERS, WHITE PLAINS, N. Y.

DONN BARBER, ARCHITECT

(For another view of this house see Page 144)

REMODELED HOUSE AT NEW CANAAN, CONN.

CALVIN KIESSLING, ARCHITECT

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

PERSONALS

Edwin H. Lundie, architect, announces the removal of his office from 532 to 649 Endicott Building, St. Paul, Minn.

Ernest H. Fougner, architect, announces the removal of his offices from 764 Broad Street to 197 Market Street, Newark, N. J.

Charles F. B. Roeth, architect, announces a change of address from 2520 Hillcourt Avenue to 2524 Cedar Street, Berkeley, Cal.

Arthur B. Heaton, architect, E. Burton Corning, associate, announce the removal of their offices from 1410 H Street, N. W., to 1211A Connecticut Avenue, Washington, D. C.

Announcement is made that Keene & Simpson, architects, have moved their offices from 403 Reliance Building to 1005 Land Bank Building, Kansas City, Mo.

I. A. Baum, of the Boyer-Baum Company, architects, St. Louis, Mo., has resigned from that firm, and will now practice architecture in the city of Memphis, Mo.

Carl E. Macomber, architect, has moved his office from 310 Forester Building to the Board of Commerce Building, 234 North Washington Avenue, Saginaw, Mich.

Clifford Shopbell & Company, architects, announce a reorganization under the new firm name of Shopbell, Fowler & Thole, Inc., 707 Furniture Building, Evansville, Ind.

Strawn Gay, in charge of the La Salle, Ill., office of John Hanifen, architect, has moved to larger quarters on the second floor of the Tribune Building, La Salle. Manufacturers' catalogs and samples are desired.

J. P. Russett, A.I.A., architect, has established an office at 321 Fleming Building, Des Moines, Iowa, for the practice of architecture. Manufacturers' catalogs and samples would be appreciated.

It is announced that the Hub Engineering & Construction Company has opened an office at 2855 Third Avenue, New York City, for the practice of architecture and general construction, where they will be glad to receive manufacturers' catalogs and samples.

E. T. Heitschmidt, architect, has moved his office from 768 East Taylor Street, Portland, Ore., to 641 Pacific Mutual Building, Los Angeles, Cal.

It is announced that the architectural firm of Della Penna & Erickson has been dissolved. V. Della Penna has opened his office at 344 East 149th Street, New York City, where he would be pleased to receive manufacturers' catalogs and samples.

Cramer, Bartlett & Wise, architectural engineers, announce that they have moved their office from 430 Chapman Building to 1918 West Seventh Street, Los Angeles, Cal., where they would appreciate receiving manufacturers' catalogs and samples.

Announcement is made of the dissolution of the partnership of Attwood & Trysell, architects, Detroit, Mich. Ernest H. Trysell has taken over the business for himself and is now located in new and larger quarters at 512 Donovan Building, 2457 Woodward Avenue, Detroit. The new office will be conducted under his name.

Ernest A. Van Vleck, Oran W. Rice and Ernest Brooks announce that Frank Gaertner, Herbert M. Hathaway, Otto A. Johnson and Edgar L. Kirby have been admitted to partnership with them and that the business is to be continued under the present firm name of Starrett & Van Vleck, architects, 8 West Fortieth Street, New York City.

It is announced that Philip A. Beatty, M. Am. Soc. C. E., has opened an office for the practice of architecture and engineering at 7 East Church Street, Frederick, Md. Mr. Beatty has also associated himself with a firm of Baltimore architects to facilitate the handling of the design of churches, apartment houses, office buildings, and other structures. Manufacturers are requested to send catalogs and samples.

Word is received of the sudden death in Milan, Italy, of Harry R. Temple, architect, Champaign, Ill. Mr. Temple and his wife were on a trip through Europe, having sailed from New York last September. He was a graduate of the University of Illinois in the class of 1900 and began his professional career with the firm of Spencer & Temple, Champaign, Ill. Of recent years the firm was known as Temple & Berger.

The AMERICAN SPECIFICATION INSTITUTE

Member of The American Society for Testing Materials

19 South LaSalle Street, Chicago, Illinois

THE Board of Governors represent memberships in the following national societies: American Institute of Architects; American Society of Civil Engineers; American Society of Mechanical Engineers; American Institute of Electrical Engineers; American Society for Testing Materials; American Concrete Institute; American Iron and Steel Electrical Engineers; indicating the scope and activities of The American Specification Institute.

THE American Architect and the Architectural Review has gratuitously set apart this section for use by The American Specification Institute. The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.

Publishers, The American Architect and The Architectural Review.

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2. Drawings:
3. Agreement:
4. Terms of Payment:
5. General Conditions:
6. Regulations and Codes:
7. Standards:
8. Patents:

II. ECONOMIC

9. Scope of Contract:
   - 9-1. Work Included:
   - 9-2. Work not Included:
10. Methods of Analysis and Comparison of Bids:
    - 10-1. Methods:
    - 10-2. Basis:
11. Conditional Payments:

III. GENERAL DESCRIPTIVE

12. Characteristics:
13. Service Conditions:
14. Visiting Site:
15. Working Site:
16. Working Facilities:
17. Transportation Facilities:

IV. PRELIMINARY PREPARATION

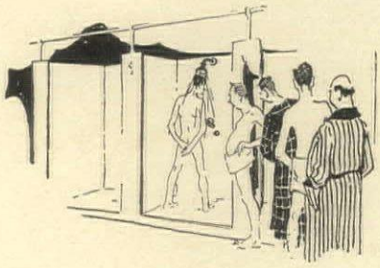
18. Field Measurements:
19. Shop Drawings:
20. Samples:
21. Models:

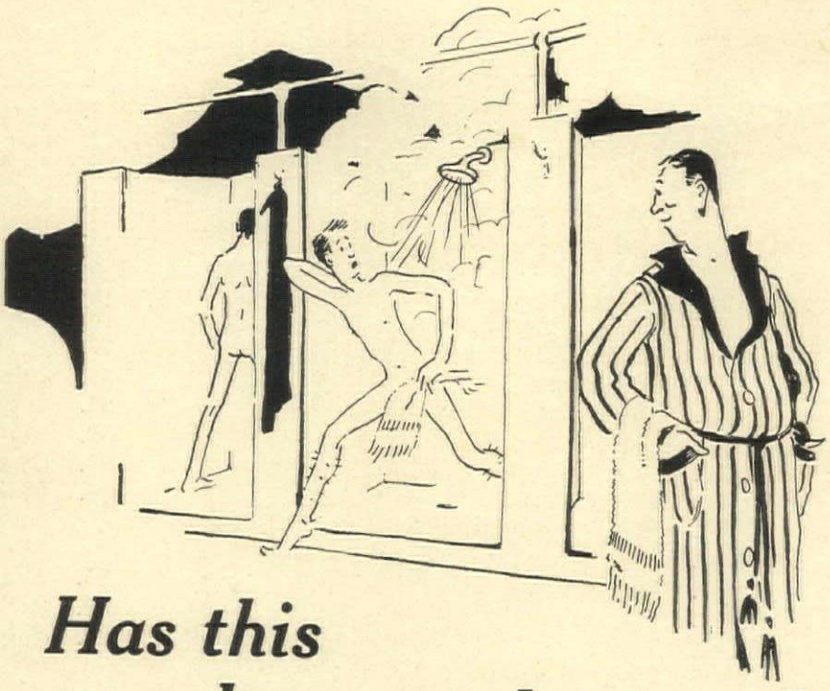
V. MATERIALS

22. Properties, Chemical and Physical:
23. Sizes, Weights, Gauges:
24. Quantities:

VI. DESIGN AND CONSTRUCTION

25. Incinerator Design:
26. Operation:
27. Kind of Material to be Reduced:
28. Capacity:
29. Furnace:
30. Ash Pit:
31. Drying Hearth:
32. Combustion Chamber:
33. Dust Arrestor:
34. Furnace Front:
35. Buck Stys and Beams:
36. Tie Rods:
37. Steel Jacket:
38. Charging Chute:





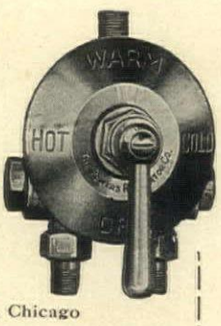
Has this ever happened to you?

Have you ever been cheated out of a pleasant, enjoyable shower by an unfriendly "shot" of cold or scalding hot water? This menace to your complete enjoyment of a safe and comfortable bath is eliminated by the Powers Shower Mixer.

Thirty years of specialization in temperature control behind this Mixer. The Powers Shower Mixer is different from all other mixers. Turn the handle of the ordinary mixer to "Warm," and if cold water is drawn from nearby showers, faucets, flush valves, etc., the reduced pressure on the cold water line allows a "shot" of hot water to reach the bather. Ordinary mixers give no protection against changing water pressures.

How the Powers Mixer Works. A simple all-metal pressure balancing valve instantly equalizes the pressure of hot and cold water before they enter the mixing chamber, so that regardless of pressure changes, a Powers Mixer always holds the temperature of the water right where you want it.

Style A for exposed piping



Coupon brings full particulars

They Stood in Line at the Union League Club

The showers of this prominent Chicago club were formerly equipped with ordinary mixers. The management decided to test the Powers Mixer on one of the showers. Members say that the men quickly found out that it did all we claim for it and actually stood in line to use it, rather than use the showers equipped with ordinary mixers.

Some Recent Installations

The Union Club, New York City, Illinois Athletic Club, Chicago, Calumet Country Club, Homewood, Ill., Big Oaks Golf Club, Chicago, Postl's Health Club, Chicago, Frank Carsey Health Club, Cubs Ball Park, Chicago, Lake View Golf and Country Club, Port Credit, Canada, Cleveland Athletic Club, Evanston Golf Club.

Make this 30 Day Test Free

A 30-Day free trial of The Powers Shower Mixer will conclusively prove every claim we make. It comes in four styles. For exposed and concealed piping. Made of solid brass with nickel plated dial and handle. It is ruggedly built and has no delicate parts to get out of order.

THE POWERS REGULATOR CO.

Over 30 years of specialization in automatic temperature control

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THE POWERS Regulator Co.
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Gentlemen: Send me full information, roughing-in dimensions, prices, etc., on the Powers Shower Mixer.

Name .....

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40. Gate Area:
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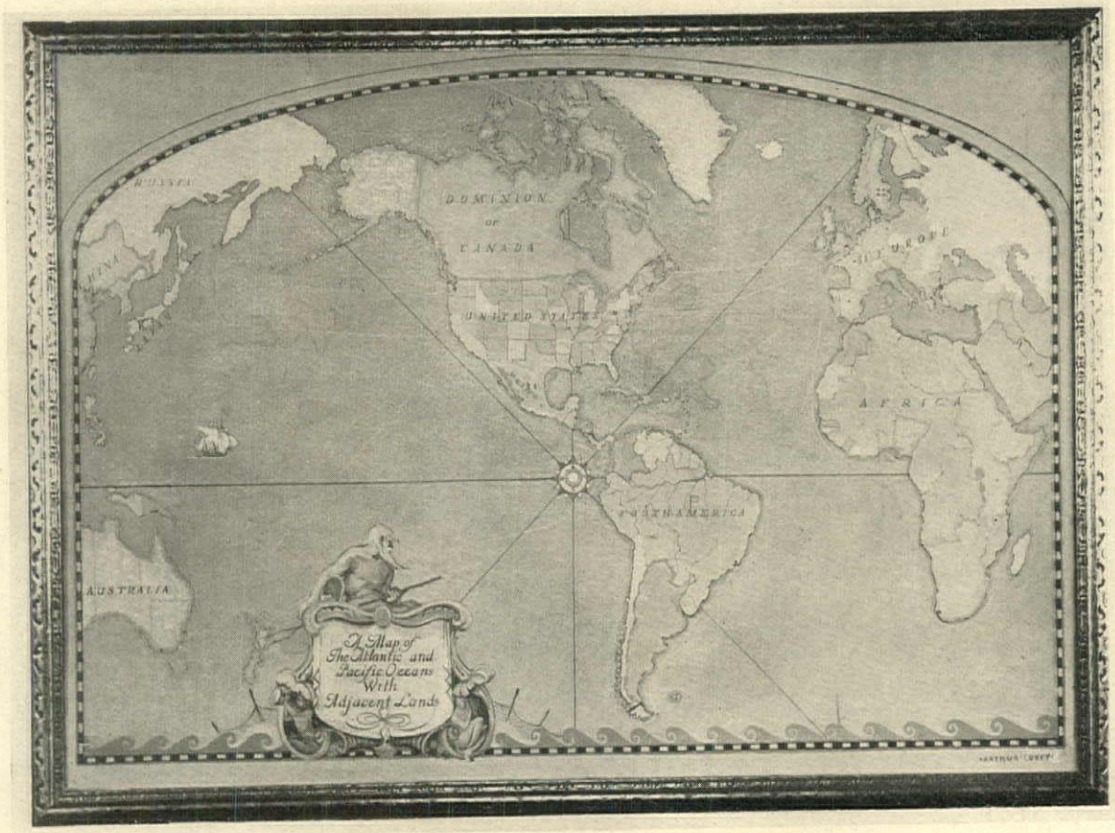
43. Ash and Clean Out Doors:
44. Poke Hole Doors:
45. Baffle Plates on Doors:
46. Cast Iron Frames:
47. Grates—Rocking:
48. Grates—Stationary:
49. Smoke Flue:
50. Smoke Flue Supports:
51. Smoke Flue Connections:
52. Chimney:
53. Flame Gate or Damper:
54. Damper Control:
55. Flue Lining:
56. Flue Covering:
57. Eye Bolt and Pulley:
58. Ladders:
59. Stairway:
60. Platform:
61. Tools:
62. Excavation:
63. Foundations:
64. Erection:
65. Brick Setting:
66. Face Brick:
67. Common Brick:
68. Fire Brick Lining:
69. Fire Brick:
70. Fire Clay Block:
71. Special Fire Brick:
72. Fire Clay:
73. Arch:
74. Brick Headers:
75. Paving of Ash Pit:
76. Mortar:
77. Sand:
78. Cement:
79. Lime:
80. Joints:
81. Drying Out:
82. Air Proofing:
83. Openings:
84. Finish:

VII. SCHEDULES

85. Shop Production:
86. Field Operation:
87. Shipment and Delivery:

VIII. RESULTS

88. Inspection and Performance:
89. Guarantees:
90. Tests:
91. Rejection:



MAP FOR A DIRECTORS' ROOM

ARTHUR COVEY, PAINTER

(Thirty-ninth Annual Exhibition, The Architectural League of New York)

BOOK NOTES

BERMUDA HOUSES

IT has taken a long time to discover the Bermudas architecturally. As a pawn under British possession, the history of Bermuda dates from its discovery about 1511, and from that time during the earliest settlement on our Southern Atlantic seaboard, these islands were a stopping place for ships bound to the Capes of the Virginias. Today the Bermudas are well known as a place of delightful resort where one may find a salubrious climate and a scenery that is attractive, to break the monotony of a Northern Winter.

But architecturally there has been little said or little said that was worth while until the publication of a splendid book by Professor Humphreys of Harvard. This book will be a very valuable addition to an architect's working library. While the small houses illustrated are, of course, built to meet conditions of a tropical climate, it is interesting to note how easily adaptable they are to most any location in the United States. Every house illustrated is of particular interest. The large suggestive value of the many designs may not be overstated. The marvel of it is that all this wealth of good material should have so long awaited an appreciative discoverer.

Well drawn plans accompany each house shown. In addition there are photographs of gateways, buttressed retaining walls, doorways and other interesting features. There are 181 plates in the book. The text is limited to a brief but interesting historical sketch of the Bermudas and an equally brief reference to methods of construction and color effects.

Bermuda Houses. By John S. Humphreys, A.I.A., Associate Professor of Architecture, School of Architecture, Harvard University. Full cloth, 315 pages, size 9 x 11 inches. Boston, Mass., Marshall Jones Company. Price $15.00.

THE PREVENTION OF VIBRATION AND NOISE

THIS book is a valuable addition to a literature which is all too small. It is the result of the author's necessity for overcoming some problems in preventing vibrations. In order to do this, certain investigations were made applicable to the matters in hand and later extended to other phases of the subject. To these results are added the findings of other investigators, gathered from some twenty-one books which in some manner treat of the subject of vibration and two hundred and thirty-two articles in technical journals, reports and pamphlets. It is this assembling of widely scattered data which makes this book so complete.

Two general subjects are included, vibrations and sounds. Human susceptibility to vibration and the methods and instruments used in measuring vibrations are described. This is followed by a chapter devoted to vibrations in buildings, bridges, towers and trains. The isolating of piers and the various damping devices in use are fully described in Chapter IV. The transmission and isolation of sounds and noises of various kinds in buildings of different types, the acoustics of rooms, the instruments and methods employed in using them for the measurement of sound intensities are discussed in detail in Chapter V. The concluding chapter is devoted to the balancing of machines for the purpose of eliminating vibration and its attendant annoyances.

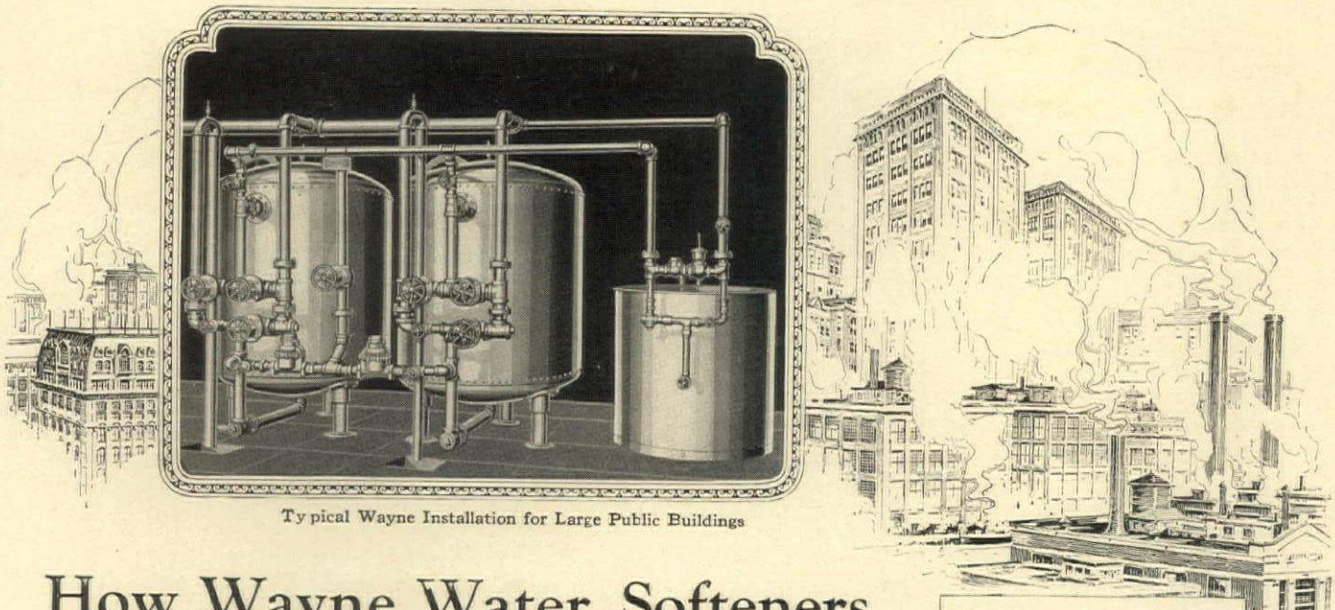
The book is fully illustrated with photographs, drawings and diagrams. The tables are carefully arranged and very complete. The typography and make-up are excellent. Although published in England, the citations to American publications form a very considerable portion of those made and the book is of value to architects and engineers, of whatever country, who have problems of vibration and noise to be solved.

The Prevention of Vibration and Noise. By Alec B. Eason, Assoc. M. Inst. C. E., A.M.I.E.E. 163 pages, 5½ x 8¼ inches, fully illustrated. Oxford University Press, American Branch, New York. Price $5.00.

ISLAMIC ARCHITECTURE

THIS is a small book. The text describes the growth and spread of Islam and the Moslems over a considerable portion of the world. The attendant Islamic architecture, influenced by the religious beliefs and rituals and the widely different countries and peoples who embraced the faith, is analyzed in a clear and interesting manner. A comprehensive bibliography is given and the phases of Islamic architecture, found in the different countries, are illustrated by forty-eight full page plates.

Islamic Architecture. By Professor Sattar Kheiri, M.A. 63 pages, fully illustrated. 7 x 10 inches. John Tiranti & Company, 13 Maple Street, Tottenham Court Road, London, W. 1, England. Price 3 shillings.



Typical Wayne Installation for Large Public Buildings

How Wayne Water Softeners Cut Expenses in Buildings

Hard water deposits or scale in boilers, piping, plumbing fixtures, hot water heaters and pumps, causes continuous losses and periodic cleaning expenses that can be completely eliminated by the installation of a Wayne Water Softener.

In the boiler room a Wayne Water Softener will save one car of coal in eight, due to increased heating efficiency when boilers are free from scale.

It eliminates the use of boiler compounds and does away with the need for cleaning, because scale never forms at all where Wayne softened water is used.

It saves costly repairs and replacements of water piping and plumbing fixtures which become clogged with deposits. It improves the water for all uses.

Wayne Water Softeners are a decided operating economy that no careful architect or building engineer can afford to overlook.

They are simple in design, compact and easily installed. They operate at the pressure of the water supply. The regenerating process requires only 20 minutes, including all operations. Costly storage tanks are not necessary.

Made in a full range of sizes to fit all requirements—types for buildings ranging from $600 up—and they cost less to buy and operate for given capacities than any other make on the market.

Architects and engineers are invited to write for copy of booklet "Water Softening and Filtration"—a complete treatise on modern water softening methods, and giving full details regarding Wayne Rapid Rate Water Softeners. The book is worthy a place in your business library.

Soft Water Now Available for All Homes

Wayne Water Softeners are now made in sizes for all homes. Wayne softened water washes clothes cleaner, with less work and half the soap. It is better for bathing, shaving and all other toilet purposes. In cooking, it saves time and brings out the full flavor of meats vegetables. It is better for drinking purposes, too.

Easily Installed

The Wayne Softener is simply connected to your present water piping. Takes all the hardness out as the water passes through, leaving the water absolutely soft, clean and crystal clear. Write for booklet.

Wayne Wins Patent Suit

For the information of the purchasers of Wayne Water Softeners or those of any other make, particularly such purchasers as those who have been threatened with suits to recover royalties, Judge Arthur J. Tuttle in the United States District Court at Detroit, on November 8th, 1923, found the Gans patent No. 1,195,923 to be void. This is the patent which one of our competitors claimed to be infringed by all Zeolite Water Softener Manufacturers.

Wayne Tank & Pump Co., 865 Canal Street, Fort Wayne, Ind

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Measuring Pumps
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Water Softeners
(Borrowman Patent)

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Water Softeners for Household and Industrial Purposes

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

NEW YORK CHAPTER, A. I. A.

AT its January meeting, the New York Chapter of The American Institute of Architects had as its guests eight of the leading consulting engineers of New York City who discussed the following subjects: Acoustics, the Earthquake in Japan, Elevators, Illumination, Landscape Work, Mechanical Equipment, Structural Work and Ventilation. The speakers were all men of national reputation and clearly indicated the intimate relationship between the work of the architect and the architectural engineer. The meeting was a delightful occasion of fraternizing between two elements of the building industry which are in a large measure interdependent upon each other.

The meetings of the New York Chapter are arranged along broad, interesting lines and are well worth the attendance of its members. The present administration is making an enviable record in its conduct of the Chapter and its activities.

AN ARTS TOUR OF EUROPE

PROFESSOR ALBERT C. PHELPS, of the College of Architecture, Cornell University, will again, as in 1923, act as leader of a group of architectural students during a trip in Europe next Summer.

According to the preliminary announcement, the architectural course under Professor Phelps will be one of four overlapping courses which together will compose a general arts tour, the other three sections being designed primarily for students of painting, of landscape architecture, and of history, respectively. The architecture section, while not excluding objects of outstanding interest outside of the architectural field, will emphasize the study of important buildings and decorative composition, the examination of drawings and models by the world's greatest designers, and will give opportunity to photograph and sketch architectural details.

The arts tour is one of a series of international students' tours which three years ago were established as a non-commercial undertaking under the auspices of the Institute of International Education, for the purpose of providing objective educational travel of a high order at minimum cost, with scholarly guidance and instruction, and under dignified auspices. The arts tour of 1924 will be similar in plan to that which was carried out by the Institute of International Education as a part of its program for 1923.

Dates of sailing and other details may be secured from the Institute of International Education, 522 Fifth Avenue, New York, or from Irwin Smith, Times Building, New York.

UNIVERSITY OF DETROIT TO HAVE NEW HOME

FROM press reports we learn that the University of Detroit is to have new structures built on a sixty acre campus.

The design for the initial group of twelve buildings submitted by Malcomson & Higginbotham, architects, in competition with eight other architects, has been chosen by the committee of architects and officials of the university for adoption. Second and third places were awarded to B. C. Wetzel & Company, architects, and Stratton & Snyder, architects, respectively.

It is estimated that the buildings included in the design will cost approximately $3,000,000. They comprise the faculty building with living quarters and a chapel for faculty members, a commercial and finance building, the administration building, a recitation hall, a parish church, chemistry building, library, general science building, chapel for student religious exercises, an engineering building, gymnasium and power house, and an athletic stadium.

The architectural design adopted is the Mission style with a suggestion of the more pretentious Spanish Renaissance.

ENDOW CHAIR OF HOME ARTS

ENDOWMENT of a professorship in the home arts through the gift of $100,000 by the heirs of a woman who believed the home to be the most important institution of the social structure, was recently announced by Northwestern University, Evanston, Ill.

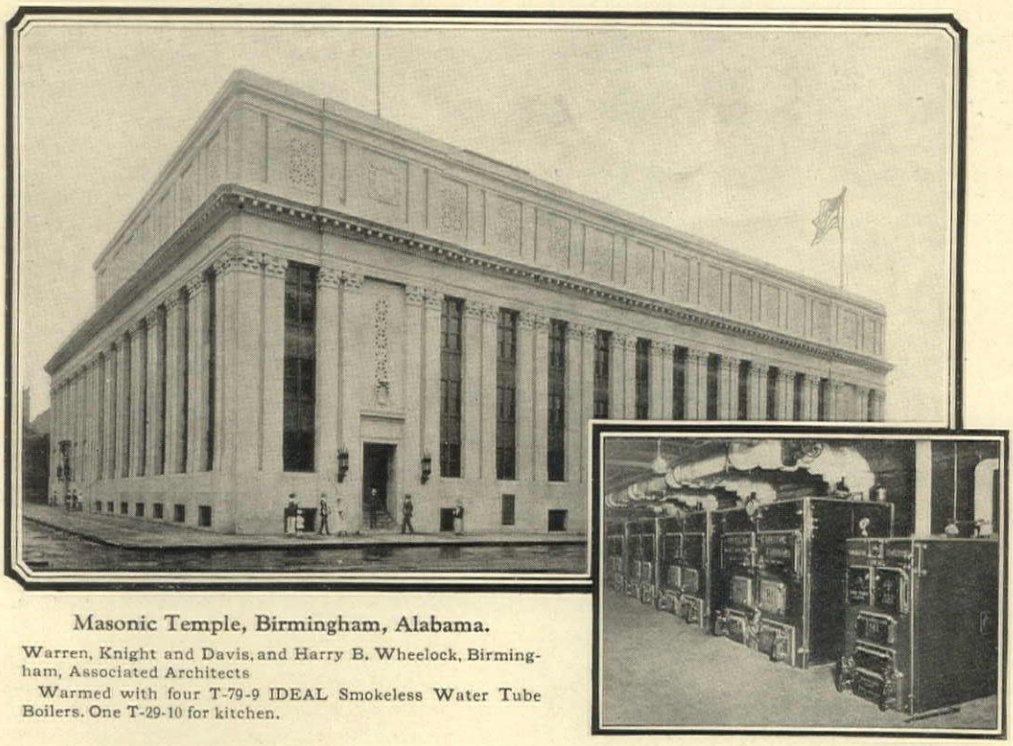
The income from the gift shall be used, according to the terms of the donors, "for instruction in those arts which are directly related to making home life more perfect and to making the home more beautiful and attractive; to provide for competent instruction in specific subjects relating to home decorations, and to furnishing and clothing designs with equal consideration for the artistic and economic phases involved."

This new gift leaves only $275,000 to be raised in order to obtain the $600,000 recently offered to Northwestern conditionally by the General Education Board.

CANADIAN SCHOLARSHIP FOR ARCHITECTURE

THE Royal Canadian Academy of Arts, it is learned, offers a travelling scholarship for architecture valued at $1,500. The scholarship is restricted to Canadian citizens of at least six years' residence in Canada and under 30 years of age. The object of the scholarship is to encourage the study and understanding of architecture as a fine art.

Two architects and three engineers agreed on this heating plant



Masonic Temple, Birmingham, Alabama.

Warren, Knight and Davis, and Harry B. Wheelock, Birmingham, Associated Architects

Warmed with four T-79-9 IDEAL Smokeless Water Tube Boilers. One T-29-10 for kitchen.

BIRMINGHAM'S beautiful Masonic Temple is warmed by a battery of four T-79-9 IDEAL Smokeless Tube Boilers.

Low pressure boilers for this handsome building were decided upon only after the most thorough consultation among the architects, Mr. H. B. Wheelock, and Warren, Knight and Davis of Birmingham, Mr. Ray S. Wilde, Consulting Engineer of Detroit, and the two engineers on the Building Committee.

The performance record of this battery of IDEAL 79″ Boilers has thoroughly vindicated the judgment of these architects and engineers. For Mr. F. B. Keiser, President of the Masonic Temple Association of Birmingham, writes: "We are pleased to advise that the boilers are satisfactory from a standpoint of fuel consumption, efficiency and splendid results derived from the individual units. One boiler carries the load in mild weather. We shall be glad to have you refer anyone to us for information."

If your files do not already carry complete information about the IDEAL 79″ Boiler, write to either address below for a catalogue.

AMERICAN RADIATOR COMPANY

IDEAL Boilers and AMERICAN Radiators for every heating need

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REFERENCE LIST OF BUSINESS LITERATURE

A service arranged for the use of the Architect, Specification Writer, and Architectural Engineer.

This list of the more important business literature of Manufacturers of building material and equipment is published each issue. Any of these publications may be had without charge, unless otherwise noted, by applying to The American Architect and The Architectural Review, 243 West 39th Street, New York, or obtained directly from the manufacturers. Either the titles or the numbers may be used in ordering.

AIR CONDITIONING—See also Heating and Ventilation

The Bayley Manufacturing Company, 732-76e Greenbush St., Milwaukee, Wis.

486. *Bulletin No. 23.* This bulletin is descriptive of the Bayley Turbo-Atomizer, the Bayley Turbo Air-Washer and Air Conditioner, for cleaning, cooling, tempering, humidifying and dehumidifying air. It contains an interesting treatise on air conditioning methods together with useful tables and a set of specifications. 32 pp. Ill. 7¾ x 10½ in.

ARCHITECTURAL IRON WORK—See also Ornamental Metal Work

ARCHITECT'S OFFICE EQUIPMENT

Precision Adding Machine Co., Gotham Bank Bldg., New York City.

F794. *The Quixsum Fractional Adding Machine.* A machine for adding linear measurements in terms of hundreds of feet, feet, inches, fractional parts of inches to thirty-seconds. 8 pp. Ill. 4 x 8½ in.

ASBESTOS—See also Lumber—Roofing

Johns-Manville Co., New York. N. Y.

372 *Catalog No. 304.* A treatise on the manufacture and uses of Johns-Manville Building Materials made of asbestos and mastic for all places exposed to fire or corrosion. 100 pp. Ill. in colors. Board covers. 8½ x 11 in.

ASBESTOS ROOFING—See also Roofing

The Philip Carey Co., Lockland, Cincinnati, Ohio.

380. *Asbestos versus Fire.* Booklet in colors. Contains information about asbestos; data on Carey Prepared and Built-up Asbestos Roofing; pictures of buildings on which they have been used. 15 pp. Ill. 6 x 9 in.

ASH HOISTS—See also Hoists

Gillis & Geoghegan, 545 West Broadway, New York, N. Y.

329. *General Catalogue.* Contains specifications in two forms, (1) using manufacturer's name, and (2) without using manufacturer's name. Detail in ¼ in. scale for each telsecopic model and special material handling section. Fully illustrated with photographs of actual installations and descriptive matter of same. 20 pp. 2 colors. 8½ x 11 in.

BANK EQUIPMENT

Art Metal Construction Company, Inc., Jamestown, New York.

545. *The Banking House in Art Metal.* A book of bank interiors showing the use of art-metal. It is an illustrated encyclopedia of bank furnishings in bronze and steel. 72 pp. Ill. 8½ x 11 in.

BRICK

American Face Brick Association, 1754 People's Life Bldg., Chicago, Ill.

103. *The Story of Brick.* Contains the history of, and basic requirements of building brick, artistic, sanitary and economic reasons, comparative costs, and fire safety with photographs and drawings, and illustrates ancient and modern architectural works of note in brick. Size 7 x 9¼ in. 56 pp.

137. *A Manual of Face Brick Construction.* The history of brick making, types of face brick, showing details of construction for walls, chimneys and arches. Details of use of tile and brick construction and different types of bonds are given. A series of plans and elevations of small brick houses, descriptions, useful tables and suggestions are illustrated and described. Size 8½ x 11 in. 116 pp. Price $1.00.

155. *The Home of Beauty.* A booklet containing fifty prize designs for small brick houses submitted in national competition by architects. Texts by Aymar Embury II, Architect. Size 8 x 10 in. 72 pp. Price 50 cents.

371. *Architectural Details in Brickwork. Series One, Two and Three.* Each series consists of an indexed folder case to fit standard vertical letter file, containing between 30 and 40 half-tones in brown ink on fine quality paper. These collections are inspiring aids to all designers. Sent free to architects who apply on their office stationery; to others, 50 cents for each series.

454. *Bungalow and Small House Plans.* Four booklets containing plans for attractive small brick houses, containing 3-4, 5, 6, and 7-8 rooms. 50 pp. Ill. 8½ x 11 in. 25 cents each, $1.00 for the set.

BRICK AND TILE—See also Brick

B. Mifflin Hood Brick Co., Atlanta, Ga.

561. *Pottery.* A beautifully prepared and illustrated book and portfolio of work executed with the products of this company. Included are "Riviera" Mission Roofing Tile, "Riviera" Shingle Roofing Tile, Rubble Random Tile and Quarrie Tile for walks, floors and terraces, fireplace tile and Hood Brick. Many of the illustrations are in full color and give an excellent impression of the results attained. Printed on one side for convenient filing. 45 pp. Ill. 9½ x 12¼ in.

BUILDING CONSTRUCTION

Cement-Gun Company, Allentown, Pa.

563. *Report on Gunite Walls.* A report of fire tests made by Underwriters' Laboratories on Gunite walls, resulting in giving them a three-hour fire resistance classification. 90 pp. Ill. 6 x 9 in.

Concrete Engineering Co., Omaha, Neb.

347. *Handbook of Fireproof Construction.* An illustrated treatise on the design and construction of reinforced concrete floors with, and without suspended ceilings. The Meyer Steel-form Construction is emphasized and tables are given of safe loads for ribbed concrete floors. 40 pp. Ill. 8½ x 11 in.

Curtis Companies Service Bureau, Clinton, Iowa.

662. *Better Built Houses.* Vol. XIII. This volume contains floor plans and perspectives of 21 two family houses. The designs were made by Trowbridge and Ackerman, Architects, New York, and illustrations rendered by Schell Lewis. Printed in sepia on heavy cream paper. Sent free to architects, east of the Rockies, requesting it on business stationery, otherwise price $1.00. 24 pp. Ill. 9 x 12 in.

The General Fireproofing Co., Youngstown, Ohio.

F791. *The Fireproofing Handbook* (Eighth Edition). A comprehensive book dealing with fireproof construction using as a basis Self-Sentering, Trussit, Expanded Metal, Metal Lath, Steel Lumber and Steel Tile. Details, design tables and specifications. Free on application. 72 pp. Ill. 8½ x 11 in.

David Lupton's Sons Company, Philadelphia, Pa.

529. *Catalog C, Second Edition.* A catalog of steel shelving with bolted adjustment, also steel bins and racks, utility cabinets, bench legs, bench drawers, tool cabinets and stands, tote boxes, foremen's desks, waste bins, etc., 39 pp. Ill. 8½ x 11 in.

Portland Cement Association, 347 Madison Ave., New York City.

595. *Concrete Floors.—Proposed Standard Specifications of the American Concrete Institute.* Specification with explanatory notes covering materials, proportions, mixing and curing. Plain and reinforced slabs are covered as well as one and two course floors and wearing courses. 18 pp. 6 x 9 in.

Truscon Steel Company, Youngstown, Ohio.

317. *Truscon Floortyle Construction. Form D-352.* Contains complete data and illustrations of Floortyle installations. 16 pp. Ill. 8½ x 11 in.

318. *Truscon Standard Buildings. Form D-398.* Describes Truscon Standard Steel Buildings, with diagrams, illustrations of installations, descriptive matter and list of users. 48 pp. Ill. 8½ x 11 in.

319. *Truscon Building Products. Form D-376.* Contains a brief description of each of the Truscon Products. 112 pp. Ill. 8½ x 11 in.

320. *Modern School Construction. Form D-396.* Contains illustrations of schools, with typical elevations, showing advantages of Truscon Products for this construction. 16 pp. Ill. 8½ x 11 in.

BUILDING DIRECTORIES

The Tablet & Ticket Co., 1015 West Adams St., Chicago, Ill.

517. *Office Building Directory.* Bulletin illustrating and describing directories made by this company providing for any required number of names. Frames of wood or metal with glass cover or doors. Name strips with one quarter inch white letters furnished. Size 7 x 10 in. 4 pp.

BUILDING HARDWARE—See Hardware

BULLETIN BOARDS

R. W. Clark Mfg. Co., 1774 Wilson Ave., Chicago, Ill.

588. *Clark Directories and Clark Changeable Bulletin Boards.* Two pamphlets describing the Clark Changeable Bulletin Board and Directories for Office Buildings, Hotels, Business Buildings, etc. 8 pp. and 4 pp. Ill. 6¼ x 9 in.

The Tablet & Ticket Co., 1015-1021 West Adams Street, Chicago, Ill.

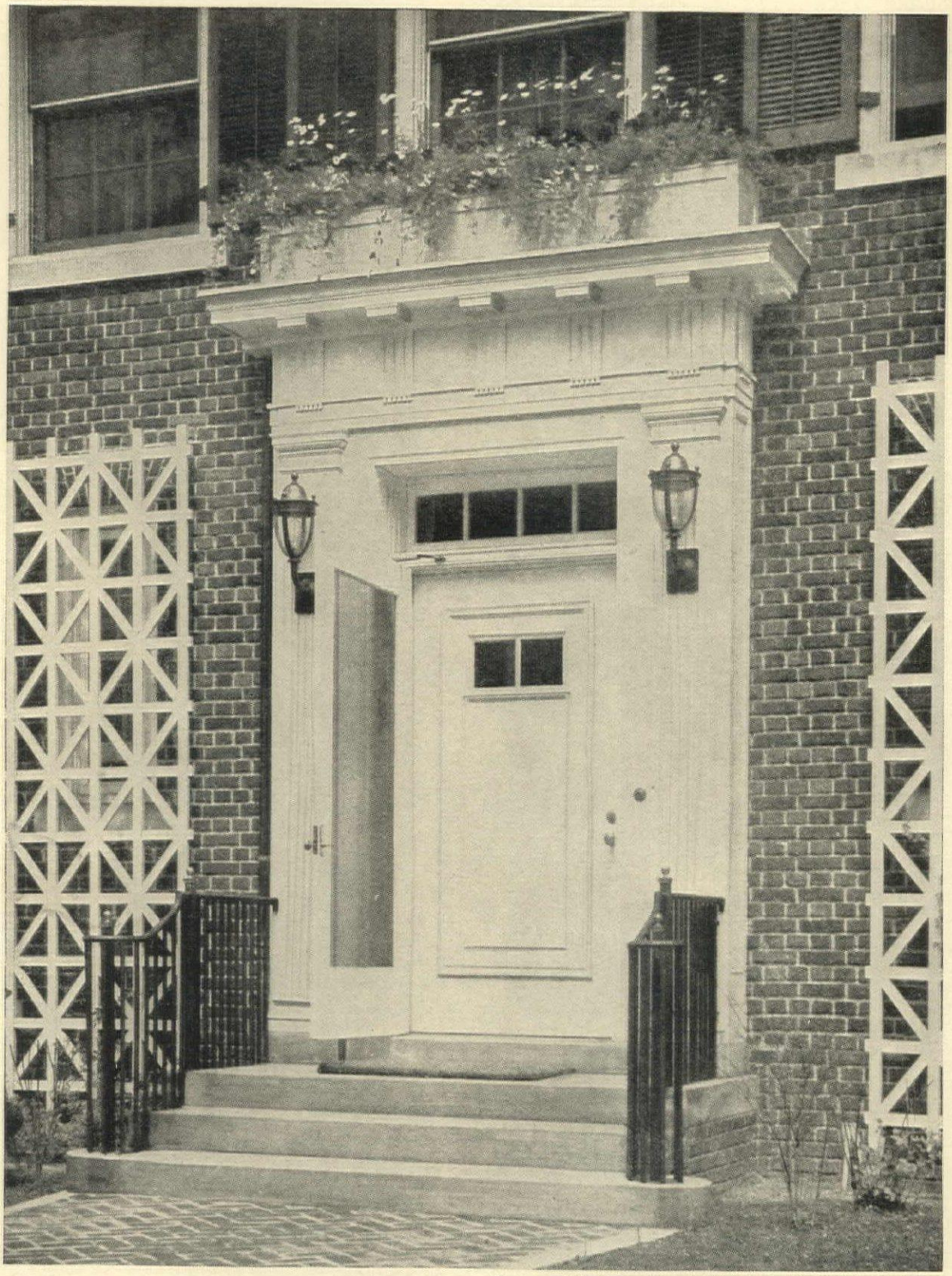
516. *T. & T. Changeable Bulletin Display Boards.* Describes bulletin boards with changeable type which has a self-spacing device so the lettering always looks neat and regular. 24 pp. Ill. 6 x 9 in.

CABINETS

Hess Warming & Ventilating Co., 1204-7 Tacoma Building, Chicago, Ill.

386. *The Hess Sanitary Medicine Cabinet Lockers and Mirrors.* Description with details of an enamelled steel medicine cabinet for bathrooms. 20 pp. Ill. 4 x 6.

CASEMENTS—See Doors and Windows



Doorway of Residence, Detroit, Michigan. Albert Kahn, Architect

THE severe, classical lines of this doorway, at once simple and elegant, fit admirably into the brick field of the wall surface with its neat tracery of Flemish Bond. If you do not have "Architectural Details in Brickwork," ask for the portfolio. The halftone plates, issued in three series, each in a folder ready for filing, will be sent to any architect requesting them on his office stationery. The plates show many examples of the beautiful effects that can be economically obtained through the use of standard sized face brick. Address, American Face Brick Association, 1754 Peoples Life Building, Chicago, Illinois.

REFERENCE LIST OF BUSINESS LITERATURE—Continued

CEDAR LINING—See Lumber

CEILINGS, METAL

The Edwards Manufacturing Company, Cincinnati, O.

193. *Pamphlet* of 32 pages describing metal ceilings and wainscoting. Well illustrated, with list prices and rules for estimating. 7 x 10 in.

CELLAR SASH—See Doors and Windows

CEMENT

The Carney Co., Mankato, Minn.

448. *The Bond That Guarantees the Wall.* Attractive catalog for architects, engineers, contractors, and dealers. Describes fully the characteristics, durability and economy of this nature-mixed cement that requires no lime. Contains simple formula for mixing and illustrations of Carney-laid buildings. 24 pp. Ill. 8½ x 11 in.

599. A circular describing improvements in manufacturing the material, cost comparisons, physical tests and specifications for use. 4 pp. Ill. 8½ x 11 in.

690. Attractive Circular describing late improvements in manufacturing Carney Cement, cost comparisons, physical texts, specifications and testimonials. Contains four page list of Carney-built buildings in all parts of the United States with architects' and contractors' names. 8 pp. Ill. 8½ x 11 in.

Durastone Co., 422 East 3rd St., New York, N. Y.

418. *Durastone Brand Cement.* A description of a cement which matches any stone or marble, any color or texture. Can be cast in molds and also used for walls or plain surfaces. Illustrations are given of beautiful work executed with this material. 12 pp. 8½ x 11 in.

Louisville Cement Co., Inc., Louisville, Ky.

694. *Brixment for Perfect Mortar.* A description of the chemical and physical properties of Brixment, advantages of its use in mortars for brick and stone masonry, tests of strength and directions for use. In cover for filing. 16 pp. Ill. 8½ x 11 in.

Portland Cement Association, 111 West Washington St., Chicago, Ill.

636. *Concrete Data for Engineers and Architects.* A valuable booklet containing the reports of the Structural Materials Research Laboratories at Lewis Institute, Chicago, in abbreviated form. It is of great value to writers of specifications. 18 pp. Ill. 8½ x 11 in.

650. *Concrete Floors.* Contains the tentative specifications of the American Concrete Institute for concrete floors of all kinds, with notes on floor finishes, coverings, typical construction designs and computing data. 16 pp. Ill. 8½ x 11 in.

CHAIRS—See Furniture

The B. L. Marble Chair Co., Bedford, Ohio.

587. *Office Chairs, Catalog No. 31.* Describes a complete line of seating fixtures, for offices, directors' rooms and other places consisting of stationary and swivel chairs, settees and couches, both plain and leather upholstered. Also stenographer's chairs, stools, waste baskets, coat trees and accessories. 75 pp. Ill. 9 x 12 in.

CHUTES—See also Laundry Equipment

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

171. Booklet showing general construction and size of chutes to receive coal. Two types are built into the foundation wall with glass panel in place of cellar window; another type is placed flush with the ground, and is placed adjacent to wall, or can be placed near the street curb. Size 3½ x 6¼ in. 16 pp.

CLOCKS

Landis Engineering and Manufacturing Co., Waynesboro, Penna.

469. *Landis Electric Time and Program System.* A collection of bulletins No. 100, 110, 120, 130, 150 and 160, dealing with master and secondary clocks, equipment, time stamps, etc. Bound in expansible filing cover of tough paper. 48 pp. Ill. 8½ x 11 in.

COLUMNS

Lally Column Co. of New York, 334 Calyer Street, Brooklyn, N. Y.

122. *Lally Columns. Handbook.* Detailed construction diagrams for various types of steel construction. The text describes advantages of endurance and economy of the column. Various tests, tables of sizes, dimensions, weight, carrying capacities, and data on other structural materials are given. Size 4⅝ x 6⅝ in. 81 pages.

CONCRETE, REINFORCED—See also Reinforcing Steel

CONDUITS—See Pipe

Enameled Metals Co., Pittsburgh, Pa.

584. *Pittsburgh Standard Rigid Conduit.* A catalog describing patented thread protected enameled conduit and galvanized conduit with specifications and useful wiring data. 31 pp. Ill. 6¼ x 9½ in.

DAMPPROOFING—See also Waterproofing

DOORS AND WINDOWS

Andersen Lumber Company, Bayport, Minn., (formerly South Stillwater).

559. *Complete Catalog for Architects and Builders.* Describes Andersen Standard Window Frames and Cellar Sash Frames, which are in 7 units instead of 57 and may be assembled and nailed in 10 minutes. Shows uses in special construction for it comes in 121 sizes and styles. 24 pp. Ill. 7¾ x 10¾ in.

Crittall Casement Window Co., Detroit, Mich.

672. *Crittall Universal Casements, Catalog No. 22.* Contains complete description, photographs, specifications and details of steel casement windows for banks, schools, residences, churches hospitals, set directly into masonry and with auxiliary frames. 76 pp. Ill. 9 x 12 in.

695. *Crittall Solid Steel Reversible Windows, Catalog No. 1-24.* A catalog explaining the advantages of reversible metal windows for office buildings, schools, hospitals and other substantial buildings. Details of construction and specifications. 20 pp. Ill. 8½ x 11½ in.

Dahlstrom Metallic Door Co., Jamestown, N. Y.

674. *Architectural Catalog.* Illustrated catalog showing styles and types of Dahlstrom Standard Construction Hollow Metal Doors and Trim, Condue-Base, etc. Also various types of frames, jamb construction and architectural shapes. 178 pp. Ill. 8½ x 11 in., in loose leaf.

Henry Hope & Sons, 103 Park Ave., New York.

65. *Hope's Casements and Leaded Glass.* Portfolio. Gives specifications, description and photo-engraving, of Hope Casements in English and American Architecture, full size details of outward and inward opening and pivoted casements, of residential and office types. Size 12¼ x 18½ in. 32 pp.

David Lupton's Sons Co., Philadelphia, Pa.

526. *Catalog No. 11, Service, Products.* A complete technical catalog for the engineer and contractor of large industrial plants and business buildings. Contains full architects' specifications and details for laying out industrial, school and office sash, partitions, doors and skylights for large projects. 191 pp. Ill. 8½ x 11 in.

527. *Lupton Casements and Double Hung Windows.* A book showing details and applications of steel casements and steel plate windows for the higher grade of banks and business buildings. Complete details and specifications. 41 pp. Ill. 8½ x 11 in.

528. *Steel Windows for Apartment Houses, Residences, Offices, and Schools.* Booklet on "out-at-side" windows of casement appearance for medium priced residences. Covers also steel basement windows, and types of steel windows suited for Schools, Hospitals and Office Buildings of moderate cost. 16 pp. Ill. 8½ x 11 in.

583. *Lupton, Steel Windows.* No. 110. A catalogue covering types of sash suitable for small to medium sized industrial and office buildings. Contains everything needed for the average builder in compact form. 70 pp. Ill. 8½ x 11 in.

S. H. Pomeroy Company, 282 East 134th St., New York, N. Y.

614. *Solid Metal Double Hung Window. Type "A." Bulletin A.* Complete specifications and details of sash, frame, stools and stool and apron. 4 pp. Ill. 8½ x 11 in.

Truscon Steel Co., Youngstown, Ohio.

315. *Truscon Steel Sash.* A catalog containing designing data, tables and views of Stock Sash installations. 6 pp. Ill. 8½ x 11 in.

348. *Truscon Steel Sash.* This handbook has been prepared for detailers and specification writers. The descriptions are clear and the details are complete. 80 pp. Ill. 8½ x 11 in.

638. *Daylighting Schools.* A treatise on the daylighting and window ventilation of school buildings quoting eminent authorities, illustrated with diagrams of lighting data and details of suitable windows. 28 pp. Ill. 8½ x 11 in.

Van Kannel Revolving Doors, 250 West 54th St., New York City.

F790. *Van Kannel Revolving Doors.* A folder explaining the safety of these panic-proof and automatic speed controlled doors. 4 pp. Ill. 7 x 11 in.

Van Zile Ventilating Corporation, 280 Madison Ave., New York City.

692. *The Ventador.* Describing a ventilattng door panel permitting the passage of air but not light or visual inspection. Can be closed tight. Better serves the purpose of a transom. 14 pp. Ill. 3½ x 6 in.

DRAFTING MATERIALS

American Lead Pencil Co., 220 Fifth Ave., New York, N. Y.

268. *Booklet C-20. Venus Pencil in Mechanical Drafting.* An interesting illustrated booklet showing the possibilities of the Venus Drawing Pencil for drafting. 6 x 9 in.

Joseph Dixon Crucible Company, Pencil Department, Jersey City, N. J.

325. *Finding Your Pencil.* A book explaining the various degrees of hardness of the Eldorado pencil and the grade most suitable for every man who uses a pencil be he business or professional man, clerk or draftsman. Accompanied by a color chart of Dixon colored crayons. 16 pp. and 4 pp. in color chart. Ill. in colors. 3¼ x 6 in.

REFERENCE LIST OF BUSINESS LITERATURE—Continued

DRAINS—See also Plumbing Equipment

Crampton Farley Brass Co., 221 Main St., Kansas City, Mo.

194. Several pamphlets describing various types of floor and area-way drains. 3½ x 6¼ in.

The Josam Manufacturing Co., 2d and Canal Sts., Michigan City, Indiana.

630. *Josam Floor, Shower and Roof Drains. Catalog F.* A loose leaf catalog illustrating complete line of adjustable drainage devices for floors, shower baths, roofs, swimming pools, railroad and deck drains, special use drains, strainers and accessories. Details and dimensions. 55 pp. Ill. 8½ x 11 in.

631. *Josam Plate Numbers.* A loose leaf portfolio containing blue print details with dimension schedules of drainage fixtures for floors, showers, roofs, decks and special uses. 25 pp. Ill. 8½ x 11 in.

DUMB-WAITERS—See also Elevators

Kaestner & Hecht Co., 1500 No. Branch St., Chicago, Ill.

598. *Electric Dumb-waiters. Bulletin No. 520.* Illustrated catalog, 8 pp. 8½ x 11 in.

Sedgwick Machine Works, 144 West 15th Street, New York.

60. *Hand Power Elevators and Dumb-waiters in Modern Architectural Construction.* Illustrated catalogue. 4¼ x 8¼ in. 80 pp.

ELECTRICAL EQUIPMENT—See also Lighting

Frank Adam Electric Co., St. Louis, Mo.

296. *Catalog No. 25.* A catalog and price list of knife switches switchboards, panel boards, steel cabinets, switchboard material. 83 pp. Ill. 3 x 10½ in.

Benjamin Electric Mfg. Co., Chicago, Ill.

671. *Benjamin Industrial Lighting Equipment. Bulletin No. 52.* Contains lighting data and general information, complete catalog of reflectors, interchangeable devices, vapor proof units, indoor and outdoor equipment, store and office fixtures, show case lighting, fittings and accessories. 80 pp. Ill. 8 x 10½ in.

Burke Electric Company, Erie, Pa.

562. *Bulletin 126, Direct Current Motors and Generators.* A bulletin describing motors and generators developed especially to meet the most severe requirements and conditions encountered in mills, factories, small power plants, office buildings, etc. 8 pp. Ill. 8 x 10½ in.

Crouse-Hinds Company, Syracuse, N. Y.

F793. *Safety Panels and Cabinets, Folder No. 9.* Description of a full line of metal safety panels and cabinets arranged for push button or tumbler switches and for plug or cartridge fuses. 8 pp. Ill. 6¼ x 9½ in.

Harvey Hubbell, Inc., Bridgeport, Conn.

297. *Electrical Specialties. Catalog No. 17, 1921.* This catalog contains descriptions with prices of the thousand and one items connected with electric light, electric alarm and small electric appliance installations in modern buildings. 104 pp. Ill. 8 x 10½ in.

Minneapolis Heat Regulator Co., Minneapolis, Minn.

570. *The Minneapolis Thermostatic Relay Switch.* Used in connection with any Minneapolis Thermostat, provides a means of temperature control for automatic oil burners, electric refrigerating apparatus, electric heating units and any similar equipment where it is necessary to operate an electric switch in accordance with temperature changes. 4 pp. Ill. 8½ x 11 in.

National Metal Molding Co., Pittsburgh, Pa.

481. *Liberty Rubber Insulated Wires, Cables and Cords.* A descriptive catalog of insulated wires, cables and cords for electric wiring. Contains much special information together with useful tables. 20 pp. Ill. 6 x 9 in.

ELEVATORS—See also Dumb-waiters and Hoists

A. B. See Electric Elevator Co., 52 Vesey St., New York.

169. Photographs and description in detail of elevator equipment manufactured by the A. B. See Electric Elevator Co. Size 6 x 8 in.

American Elevator & Machine Co., Louisville, Ky.

196. *Illustrated Catalogue* showing elevator equipment for various uses. 32 pp. 2½ x 9½ in.

Kaestner & Hecht Co., 1500 No. Branch St., Chicago, Ill.

597. *Electric Traction Elevators, Bulletin No. 500.* Illustrated catalog describing gearless traction elevators and worm-geared traction elevators. 31 pp. 8¼ x 11 in.

Kimball Brothers Company, Council Bluffs, Iowa.

330. *Kimball Elevators.* An illustrated catalog of hand power, sidewalk, and garage elevators and dumb-waiters and electric passenger, freight and push button elevators. 32 pp. Ill. 7¾ x 10½ in.

Otis Elevator Co., 260 Eleventh Ave., N. Y. C.

651. *Otis Geared and Gearless Traction Elevators.* Leaflets describing all types of geared and gearless traction elevators with details of machines, motors and controllers for these types. Illustrated. 8½ x 11 in.

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

335. *"Ideal" Elevator Door Equipment.* Catalog showing elevator door hangers for one, two and three speed doors, also doors in pairs and combination swing and slide doors. Door closers and checks. 24 pp. Ill. 8½ x 11 in.

ESCALATORS

Otis Elevator Co., 260 Eleventh Ave., N. Y. C.

652. *Elevators and Inclined Elevators.* A comprehensive catalog illustrating the use of escalators for transporting people in stores, subways, railroad stations, theatres and mills; also inclined freight elevators for stores, factories, warehouses and docks adjustable to tide levels. 22 pp. Ill. 8½ in.

FILTERS—See Air Filters

FINANCING OF ENTERPRISES

S. W. Straus & Co., 565 Fifth Ave., New York, N. Y.

183R. *Forty Years Without Loss to Any Investor.* A book describing the Straus Plan of investments. This firm underwrites and sells only first mortgage serial bonds secured by newly improved income producing properties, or high grade industrial properties. 37 pp. Ill. 5 x 8 in.

FIRE DOORS AND SHUTTERS—See Doors and Windows

FIREPLACES AND MANTELS

Colonial Fireplace Co., 4619 Roosevelt Road, Chicago, Ill.

676. *Blue Print Details.* A valuable set of scale details of correct fireplace construction and examples of details to avoid. Instructions for setting the Colonial head throat and damper. Explanations of necessity for summer use of damper. Folder equivalent to 8 pp. Ill. 8¼ x 10½ in.

H. W. Covert Co., 137 East 46th St., New York.

79. *Hints on Fireplace Construction.* Diagrams of construction and installation of Covert "Improved" and "Old Style" dampers and smoke-chambers, and other fireplace accessories. Size 5⅝ x 8½ in. 12 pp.

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

92. *Dampers, Chutes, Doors and Dumps.* Illustrated catalog. Equipment and appurtenances of various types, construction and installation, data, dimensions and prices.

Peerless Manufacturing Company, Inc., Louisville, Ky.

513. *The Lure of the Fireplace.* This booklet contains information and diagrams for the design and building of fireplaces, together with descriptions of modern domes and dampers so that a fireplace will work effectively at all times. Contains many illustrations of tasteful mantel designs. 24 pp. Ill. 5 x 7 in.

FLOOR COVERING—See Flooring

FLOORING, SUB—See also Stucco Base

FLOORING

Armstrong Cork Co., Linoleum Department, Lancaster, Pa.

222. *Business Floors.* A handy reference on floors for public and semi-public buildings, containing specimen specifications, directions for laying and other helpful data. Illustrated in color. 6 x 9 in.

223. *Armstrong's Linoleum Floors.* A handbook for architects, published in the file form (8½ x 11 in.) recommended by the American Institute of Architects. A technical treatise on Linoleum containing general information, tables of grades, gauges and weights, specimen specifications, and detailed directions for laying linoleum. Profusely illustrated in colors.

The Barber Asphalt Co., Philadelphia, Pa.

659. *Genasco Trinidad Lake Asphalt Mastic.* A book describing its manufacture, uses and methods of application, including application over old floors. Separate specifications for flooring, waterproofing and roofing uses. 34 pp. Ill. 6 x 9 in.

Bonded Floors Co., Inc., 1421 Chestnut St., Philadelphia, Pa.

615. *Standard Specification for Installation of Battleship Linoleum Over Concrete.* A booklet containing specifications and explanatory notes for laying Battleship Linoleum Over Concrete and Wood, with detailed drawings. 8 pp. 8½ x 11 in. A. I. A. File No. 28. Ill.

653. *Gold-Seal Treadlite Tile.* An illustrated booklet showing Treadlite Tile installations and containing general information, specifications, etc., with reproductions of the product in colors.

669. *Distinctive Floors.* An attractive publication illustrated in color, describing Gold Seal Rubber Tile for floors. 8 pp. Ill. 8 x 10¾ in.

The Long-Bell Lumber Co., R. A. Long Building, Kansas City, Mo.

204. *The Perfect Floor.* Tells how to lay finish and care for Oak Flooring. 16 pp. 14 illus. 5⅛ x 7⅞ in.

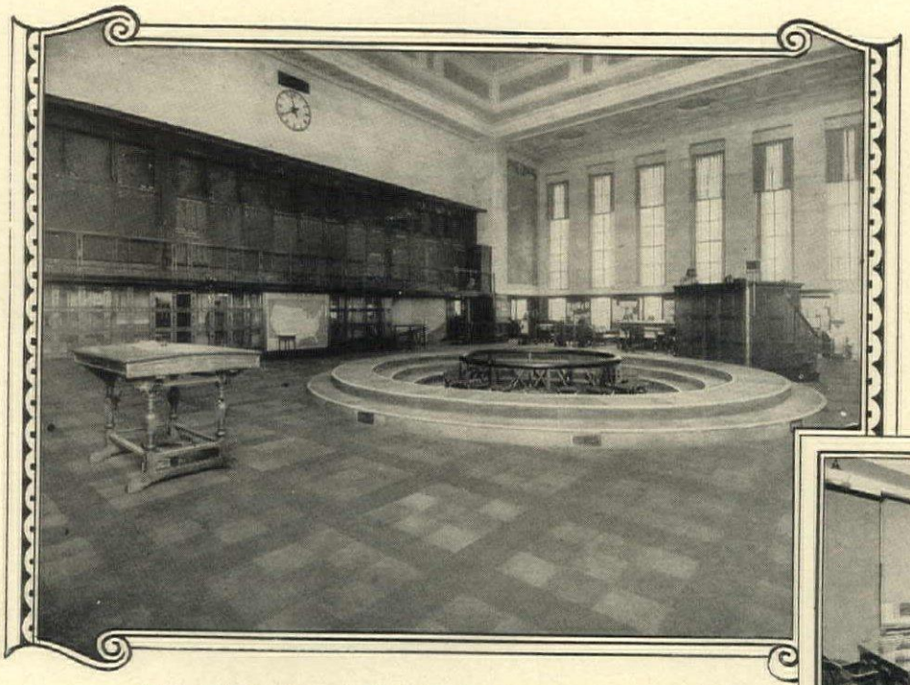
The Marbleloid Co., 461 Eighth Ave., New York.

61. *The Universal Flooring for Modern Buildings.* Illustrated booklet. Describes uses and contains specifications for Marbleloid flooring, base, wainscoting, etc. Size 6¾ x 9¾ in. 32 pp.

523. *Marbleloid for Schools.* A bulletin showing schools in which Marbleloid flooring is used. It is a composition flooring applied in a plastic state. Other bulletins show where it has been used in various classes of buildings. 4 pp. Ill. 3½ x 11 in.

Franklyn R. Muller Co., Waukegan, Ill.

242. *Asbestone Flooring Composition.* A book describing uses of and giving specifications and directions for Composition Flooring. Base, Wainscoting, etc. 8½ x 11 in. Ill.



Views of the Cotton Exchange Building, New York. *Architect:* Donn Barber, New York.
Throughout the building are used Gold-Seal Treadlite Tile, Gold-Seal Battleship Linoleum, Gold-Seal Rubber Tile and Gold-Seal Cork Tile.
Above: Trading floor of the Exchange. *Right:* Private office, W. R. Craig Co., Cotton Exchange Building.

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REFERENCE LIST OF BUSINESS LITERATURE—Continued

FLOORING

Oak Flooring Bureau, 1014 Ashland Block, Chicago, Ill.

493. *Modern Oak Floors.* A book that tells the complete story of Oak Flooring 24 pp. Ill. 6⅛ x 9¼ in.

The Rodd Co., Century Bldg., Pittsburgh, Pa.

688. *Redwood Block Floor Booklet.* A treatise on the advantages of Redwood Block Floors in factories, warehouses, hotels, office buildings, department stores, hospitals, etc. Details, dimensions and specifications for installing. 14 pp. Ill. 4 x 9 in.

Stedman Products Co., South Braintree, Mass.

585. *Stedman Naturized Reinforced Flooring.* A circular describing a product formulated from rubber reinforced with cotton fibre, made in various colors and used for floors, wainscoting, sanitary base, stair treads, interior decorative units, wall coverings, table and desk tops and drain mats. 6 pp. Ill. 8½ x 11 in.

FLOORS—See Building Construction

FRAMES—See Doors and Windows

FURNACES—See Heating

FURNITURE—See Chairs

GARAGE CONSTRUCTION—See also Building Construction

GARAGE INCLINES AND RAMPS

American Abrasive Metals Co., 50 Church St., N. Y. C.

677. *Feralun Anti-Slip Treads for Garage Inclines and Ramps. F179.* A folder explaining the advantages of and illustrating the actual use of Feralun Anti-Slip Treads on ramps and inclines in public garages. 2 pp. Ill. 8½ x 11 in.

GARBAGE DESTROYERS

Kerner Incinerator Company, 1029 Chestnut St., Milwaukee, Wis.

384. *The Sanitary Elimination of Household Waste, M-3 Folder.* Description of construction, installation and operation of the Kernerator for residences. Illustrated by views of residences in which the Kernerator is installed, with cuts showing all details. 15 pp. Ill. 4 x 9 in.

Kewanee Boiler Co., Kewanee, Illinois.

573. *Water Heating Garbage Burners, Tabasco Water Heaters and Tanks, Catalog No. 75.* A descriptive catalog of steel water heating garbage burners, water heaters, hot water storage tanks, pneumatic tanks, gravel basins, blow-off receivers and air receivers. Tables of sizes, dimensions, capacities and pressures. 30 pp. Ill. 6 x 9 in.

GARBAGE RECEIVERS

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

170. Booklet showing general construction and sizes of garbage receivers to be placed underground for suburban use; also types to be built into the wall of city homes and apartments; also types for suburban wall with opening on inside for the maid and outside for the garbage man. Size 3½ x 6¼ in. 16 pp.

GARDENS

Julius Roehrs Company, Rutherford, N. J.

406. The Ten-Ten books issued three times a year—covering nursery stock in general, such things as fruit trees, roses and perennials. Also one general greenhouse catalog, listing orchids and greenhouse plants.

GLASS

Plate Glass Manufacturers of America, First National Bank Bldg., Pittsburgh, Pa.

484. *The Part that Plate Glass Plays in the Life of Every Man.* An illustrated folder describing the many uses of plate glass. Ask also for special circular for work in hand. 6 pp. Ill. in color. 3½ x 6¼ in.

GRANITE—See Stone

GUNITE

Cement Gun Company, Allentown, Pa.

564. *The Cement Gun, Its Application and Uses.* Reprint of a paper by Byran C. Collier, M. Am. Soc. C. E. A description of what the cement gun is and how it works, together with reports on tests. 21 pp. Ill. 6 x9 in. Ask also for companion pamphlet "Gunite Slabs" containing working tablets for designers and reports on slab tests. 30 pp. Ill. 6 x 9 in.

GUTTERS AND DOWNSPOUTS—See also Roofing

The New Jersey Zinc Co., 160 Front Street, New York, N. Y.

226. *Zinc Spouting.* Describes leaders, gutters, etc. "Made from Horse Head Zinc," giving information concerning their economy and durability. 8 pp. Ill. 6 x 9 in.

HARDWARE

Allith-Prouty Co., Danville, Illinois.

596. *General Catalog No. 90.* This catalog embraces a description of a complete line of door hangers and tracks, garage door hardware, spring hinges, rolling ladders, fire door hardware, overhead carriers, light hardware and hardware specialties. 144 pp. Ill. 7¾ x 10½ in.

The Casement Hardware Co., 227 Pelouze Bldg., Chicago, Ill.

627. *Win-Dor Casement Hardware.* A booklet describing the general use of casement windows and description, specifications and details of the casement window and the operating devices suitable for all uses. 22 pp. Ill. 5½ x 8½ in.

P. & F. Corbin, New Britain, Conn

540. *Automatic Exit Fixtures.* A catalog of fixtures that provide a ready exit at all times, as a child can operate them with ease. Doors to which they are applied can always be opened from the inside, even when locked against entrance. 4 pp. Ill. 8¾ x 11¾ in.

Monarch Metal Products Co., 5060 Penrose St., St. Louis, Mo.

438. *Monarch Casement Hardware.* A book describing hardware for casement windows. This Manual and folder comply with all suggestions made by the Structural Service Committee of the A. I. A. 18 pp. Ill. 7½ x 10½ in., in heavy folder for vertical file properly indexed.

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

336. *Modern Hardware for Your Home.* Catalog of hangers for vanishing French doors; "Air-Way" multifold hardware for sun parlors and sleeping porches; "Slidtite" garage door hardware. 24 pp. Ill. 8½ x 11 in.

435. *Distinctive Garage Door Hardware. Catalog No. A-22.* This is more than a catalog. It is a treatise for architects and builders on the door equipment of garages, covering sliding, folding and combination sliding and folding doors, with their hardware. 94 pp. Ill. 8½ x 11 in.

436. *Sliding Door Hardware. Catalog No. A-17.* A catalog of sliding door hardware of Parallel, Accordion and Flush Door partitions. 32 pp Ill. 7 x 10 in.

632. *Distinctive Garage Door Hardware. Catalog A No. 29.* A complete treatise on garage doors of every kind both hand and mechanically operated with description of standard and special hardware and accessories. 66 pp. Ill. 8½ x 11 in.

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

609. *Russwin Period Hardware.* A brochure illustrating hardware trim in twelve architectural styles or periods. 71 pp. Ill. 5 x 8 in.

610. *Catalog of Hardware, Volume Fourteen.* A complete catalog of building hardware, trim, locks, butts and accessories. 359 pp. Ill. 8 x 11 in.

Sargent & Company, New Haven, Conn.

560. *Sargent Locks and Hardware for Architects.* The latest complete catalog of locks and hardware. 762 pp. Ill. 9 x 12 in.

The Stanley Works, New Britain, Conn.

11. *Wrought Hardware. New 1921 Catalog.* This new catalog describes additions to the Stanley line of Wrought Hardware, as well as the older well known specialties and various styles of butts, hinges, bolts, etc. 376 pp. Ill. 6½ x 9½ in.

12. *Garage Hardware. Booklet, illustrated.* Garages and their equipment, such as hinges, hasps, door holders, latch sets, chain and hand bolts, showing illustrations and text with dimensions of garages, describing the Stanley Works product. Size 6 x 9 in. 24 pp.

13. *Eight Garages and Their Stanley Hardware.* Booklet Plans, drawings and complete hardware specifications. Size 5 x 7 in. 32 pp.

127. *The Stanley Works Ball Bearing Butts.* Booklet, illustrated. Description with full size illustrations of many typed butts and their parts, dimensions and finish. Size 5 x 7½ in. 32 pp.

495. *Stanley Detail Manual.* A catalog in loose leaf binder, consisting of five sections on Butts, Bolts, Blind and Shutter Hardware, Stanley Garage Hardware, Screen and Sash Hardware. Detail drawings are given, showing clearances and other data needed by detailers. 116 pp. Ill. 7½ x 10½ in.

Vonnegut Hardware Co., Indianapolis, Ind.

309. *Von Duprin Self-Releasing Fire Exit Devices.* A catalog and educational work on panic-proof, burglar-proof self releasing exit devices for doors and windows of buildings of any kind of occupancy. 41 pp. Ill. 8 x 11 in.

310. *Prince Self-releasing Fire Exit Devices. Supplement to Von Duprin Catalog No. 12.* Contains valuable information for architects on the selection, detailing, etc., of Prince devices for doors and windows to insure safety against fire panic. 32 pp. Ill. 8 x 11 in.

HEATERS—See Water Heaters

HEATING

American Radiator Company, 104-108 W. 42nd St., New York, N. Y.

427. *Ideal-Arcola Heating Outfits.* A book describing a system of hot water heating for small and medium size houses. The boiler is placed in a room and resembles a stove. No cellar required. The ash carrying reduced to a minimum. 24 pp. Ill. 6 x 8½ in.

Crane Company, 836 So. Michigan Ave., Chicago, Ill.

241. *Steam Catalogue.* A book containing full descriptions of the complete line of Crane valves, fittings, etc. 800 pp. Ill. 6 x 9 in.

The Farquhar Furnace Company, Wilmington, Ohio.

355. *Healthful Helpful Hints.* A discussion of furnace and chimney design and capacity for hot air heating and ventilation 16 pp. Ill. 4¾ x 9¼ in.

356. *A Plain Presentation to Dealers.* A book of selling talk for dealers in Farquhar Furnaces. Four model heating layouts are shown and there is a page of useful "Do and Don't" advice. 24 pp. Ill. 8½ x 11 in.

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REFERENCE LIST OF BUSINESS LITERATURE—Continued

HEATING

General Boilers Company, Waukegan, Ill.

444. *Catalog No. 7.* A catalog completely describing the construction and operation of Pacific Steel Boilers. Contains also specifications and price lists. 32 pp. Ill. 6 x 9 in.

Hess Warming & Ventilating Co., 1209 Tacoma Bldg., Chicago, Ill.

178. *Modern Furnace Heating.* An illustrated book on the Hess Welded Steel Furnaces. Pipe and Pipeless, notes for installation, sectional views, showing parts and operation, dimensions, register designs, pipes and fittings. Size 6 x 9½ in. 48 pp.

Illinois Engineering Co., Racine Ave., at 21st St., Chicago, Ill.

501. *Illinois Heating Systems. Vapor Details Bulletin 20.* This bulletin contains typical plans and elevations of heating systems, with description of details and "Standards for Computing Radiation and Boiler Sizes" of the Chicago Master Steam Fitters' Association. 18 pp. Ill. 8 x 10¾ in.

502. *Illinois Bulletins.* No. 102 contains detailed description with capacities and dimensions of Eclipse Pressure Reducing Valves. 20 pp. Ill. Nos. 202, 302, 452, 502 and 703 describe, with illustrations, Steam Specialties, Back Pressure Valves, Stop and Check Valves, Exhaust Heads, Balanced Valves, Separators, Steam Traps.

Jenkins Bros., 30 White St., New York, N. Y.

235. *Catalog No. 12.* This catalog contains descriptions of all the valves, packing, etc., manufactured by Jenkins Bros. Includes also dimensions and price lists of valves and parts. 271 pp. Ill. 4 x 6¾ in. Stiff paper cover.

237. *The Valve Behind a Good Heating System.* This booklet describes Jenkins Radiator Valves, Automatic Air Valves and other valves used in connection with steam and hot water heating. 16 pp. 4½ x 7¾ in. Stiff paper cover.

Johnson Service Company, 149 Michigan St., Milwaukee, Wis.

391. *The Regulation of Temperature and Humidity.* A description of the Johnson System of temperature regulation and humidity control for buildings; showing many kinds of thermostatic appliances for automatically maintaining uniform temperatures. 63 pp. Ill. 8½ x 11 in.

392. *Johnson Electric Thermostat, Valves and Controllers.* A catalog of devices mentioned in the title. 24 pp. Ill. 3½ x 6 in.

Kewanee Boiler Co., Kewanee, Illinois.

572. *Kewanee Radiators, Catalog No. 72.* A descriptive catalog of the standard types of cast iron radiation including wall radiation, wall boxes, radiator brackets and accessories. Tables of capacities, roughink in dimensions and other data. 23 pp. and supplement. Ill. 6 x 9 in.

Minneapolis Heat Regulator Co., Minneapolis, Minn.

660. *Minneapolis Dual Control.* This circular describes in detail the No. 65 Hydrostat and No. 70 Pressurestat and their application for the automatic heat control of hot water, steam or vapor systems. 12 pp. Ill. 3¼ x 6 in.

Molby Boiler Co., 41 East 42nd St., New York City.

F787. *Molby Boilers.* A descriptive catalog of cast-iron sectional boilers for steam, vapor or hot water heating systems. These boilers are of the downdraft, magazine-feed, smoke-consuming type. 24 pp. Ill. 4 x 9 in.

Richardson & Boynton Co., New York, N. Y., Chicago, Ill., Philadelphia, Pa., Providence, R. I., Boston, Mass.

290. *The Richardson Vapor Vacuum-Pressure Heating System.* An interesting book which presents in clear non-technical language the principles of Vapor-Vacuum-Pressure heating; the economy over ordinary steam heating, steam and hot-water systems may be altered to use this principle with views of buildings where the V-V-P system is installed. 14 pp. Ill. 8 x 11 in.

291. *Perfect Warm Air Furnaces.* No. 203. Contains a full description of various types of warm air furnaces and parts, with dimensions and necessary data. 24 pp. Ill. 8 x 10½ in.

292. *Perfect Cooking Ranges.* Description and dimensions of the complete line of the new high enamel finish Richardson Perfect ranges, with charts and information regarding combination coal and gas cooking ranges. 40 pp. Ill. 8½ x 11 in.

Sterling Engineering Company, 419 Third St., Milwaukee, Wis.

430. *Sterling Bulletins.* No. 33 describes the Sterling System of vacuum heating. 11 pp. No. 32 describes the Sterling System of vapor heating. 14 pp. No. 31 describes the Sterling slide valve return trap. 4 pp. They are all illustrated. 6 x 9 in.

Tuttle & Bailey Mfg. Co., 2 West 45th St., New York, N. Y.

395. *About Radiator Enclosures.* A booklet showing how easily and effectively unsightly radiators may be concealed by enclosures which adorn a room. 15 pp. Ill. 6¾ x 9¾ in.

396. *Special Designs. Catalog 66A.* A book of designs for grilles, screens, registers and ventilators to be used in connection with heating installations. Made of bronze, brass, iron and steel. 40 pp. Ill. 6¾ x ¾ in.

Utica Heater Company, Utica, N. Y.

557. *Utica Imperial Super-Smokeless Boilers.* These boilers burn all fuels and consume soft coal without smoke. The illustrated catalog contains complete technical data with lists of illustrations. 76 pp. Ill. 8½ x 11 in. (Separate bulletins may be had featuring the following buildings: Schools, Churches, Public Buildings, Apartments, Hotels, Residences, Industrial Buildings, Office and Theatres.)

558. *Warm Air Heating.* A folder featuring warm air heating equipment including *New Idea* pipeless furnaces, Superior pipe furnaces and *Super-Smokeless* furnaces for burning soft coal.

HEATING AND VENTILATION

American Blower Co., Detroit, Mich.

361. *Sirocco Service.* A quarterly publication containing descriptions of heating and ventilating systems installed by the American Blower Company, together with useful data for architects and engineers. 16 pp. Ill. 8½ x 11 in.

362. *General Catalog "ABC" Products.* A book full of useful data for all men who have to deal with heating and ventilating problems. 132 pp. Ill. 8½ x 11 in.

645. Special bulletins describing in detail all of the apparatus in their general catalog. Sent on request. Ill. 8½ x 11 in.

Buffalo Forge Co., 490 Broadway, Buffalo, N. Y.

215. *Buffalo Fan System of Heating, Ventilating and Humidifying.* Catalog 700. This contains a general discussion of heating and ventilating under four heads. Part 1, Public Buildings. Part 2, Industrial Plants. Part 3, Buffalo Apparatus. Part 4, Fan Engineering.

Garden City Fan Co., McCormick Bldg., Chicago, Ill.

673. *New Sectional Catalog No. 200.* Describing the latest improved cycloidal multivane fans for heating, ventilating and drying also standard steel plate fans and pipe coil heaters. Details, capacity tables and specifications, 24 pp. Ill. 7½ x 10½ in.

The H. W. Nelson Corporation (formerly Moline Heat), Moline, Ill.

411. *Univent Ventilation. Architects' and Engineers' Edition.* A scientific treatise on ventilation for schools, offices and similar buildings; with 40 pages of engineering data on ventilation for architects and engineers. 72 pp. Also "Supplement A" on Air Conditioning. 12 pp. Ill. with half-tones, line drawings and designing charts. 8½ x 11 in.

HOISTS—See Elevators and Ash Hoists

INCINERATORS—See Garbage Destroyers

INSULATION—See also Stucco Base

Insulite Division, Minnesota & Ontario Paper Company, International Falls, Minn.

487. *Universal Insulite in Building Construction.* Describes a clean, sanitary, odorless and vermin proof board made from selected waterproofed wood fibres, felted into light, strong, uniform sheets. Examples are given for use indoors and outdoors together with details and useful data. 37 pp. Ill. 8½ x 11 in.

United States Mineral Wool Co., 280 Madison Ave., New York.

83. *The Uses of Mineral Wool in Architecture.* Illustrated booklet. Properties of insulation against heat, frost, sound, and as a fire-proofing, with section drawings and specifications for use. It gives rule for estimate and cost. Size 5¼ x 6⅝ in. 24 pp.

IRON AND STEEL—See also Metals

The American Rolling Mill Co., Middletown, Ohio.

658. *The Story of Commercially Pure Iron.* A most interesting booklet recounting the historical development of iron and its present day manufacture in commercially pure, durable form. 48 pp. Ill. 6 x 9 in.

682. *What's Under the Galvanized Coating?* A booklet describing the process of galvanizing, its protective service and also the necessity for pure iron as a basis for galvanizing. 16 pp. Ill. 3¼ x 6¼ in.

Mitchell-Tappen Company, 15 John St., New York, N. Y.

257. *Booklet 14 on Standardized Metal Caging.* Description of various ways of reinforcing the concrete fireproofing on structural steel work, with particular reference to Standardized Metal Caging.

KITCHEN EQUIPMENT—See also Stoves

Bramhall, Deane Co., 261-A West 36th St., New York.

59. *The Heart of the Home.* Booklet, illustrated. Deane's French Ranges (all fuels), cook's tables and plate warmers. Size 6 x 9 in. 32 pp.

Albert Pick & Co., 208 W. Randolph St., Chicago, Ill.

F792. *Kitchen Equipment. Book C 5.* A comprehensive catalog of equipment and accessories for kitchens, cafeterias, restaurants and similar establishments. 218 pp. Ill. 9¼ x 11½ in.

The Prometheus Electric Co., 352 West 13th St., New York.

143. *Promethus Electric Plate Warmers.* Leaflets illustrating the plate warmer, describing its construction, utility and types, adaptable for residences and hotels, according to specifications. Sizes and dimensions. Size 5⅝ x 9 in.

LATH, EXPANDED WOOD

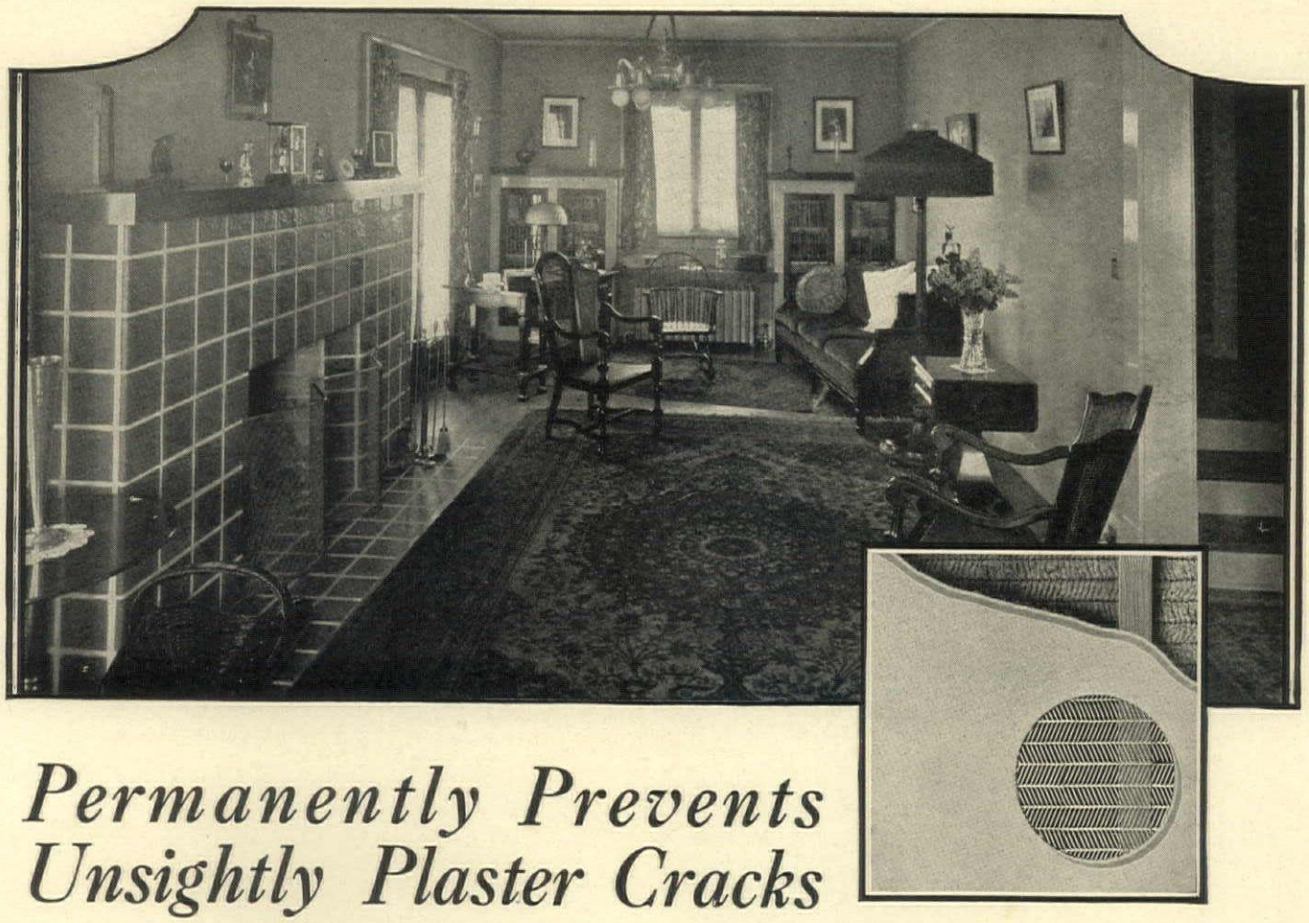
Expanded Wood Lath Corporation, 818-155 N. Clark St., Chicago, Ill.

605. *Ex-Wo Expanded Wood Lath.* An expanded wood lath made in sheets and attached to a sheathing paper. Description, directions for installation, specifications and tests. 2 and 4 pp. Ill. 9 x 11½ and 7½ x 11 in.

LATH, METAL

American Steel & Wire Co., Chicago, Ill.

228. *Stucco Houses Reinforced With Triangle Mesh Fabric.* A pamphlet containing valuable data on stucco work with tables of qualities of material and many illustrations of houses covered with stucco applied on Triangle Mesh Fabric. 24 pp. Ill. 6 x 9 in.



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REFERENCE LIST OF BUSINESS LITERATURE—Continued

LATH, METAL

Concrete Engineering Co., Omaha, Neb.

346. *How to Use Ceco Lathing Materials.* An illustrated treatise on the use of expanded metal lath. Contains construction details and complete specifications, with sample piece of lath in pocket on cover of book. 16 pp. Ill. 8½ x 11 in.

The General Fireproofing Co., Youngstown, Ohio.

592. *Building for Permanence and Beauty.* A booklet containing illustrations and plans of residences with stucco exteriors and describing proper stucco construction on Herringbone Metal Lath. 36 pp. Ill. 5½ x 7¾ in.

685. *The Right Angle.* A monthly magazine devoted to fireproof construction involving the use of metal lath, expanded metal and steel lumber. Specifications and details. Circulation free to architects and contractors. 16 pp. Ill. 8½ x 11 in.

Truscon Steel Company, Youngstown, Ohio.

316. *Hy-Rib and Metal Lath.* Tables, general data and illustrations of Hy-rib and metal lath construction. 6 pp. Ill. 8½ x 11 in.

LAUNDRY EQUIPMENT

Chicago Dryer Co., 2210 N. Crawford Ave., Chicago, Ill.

66. *Laundry Appliances.* Illustrated catalog. Descriptions of Laundry Dryers, Electric Washing Machines and Ironing Machines, especially adapted for use in residences, apartment buildings and small institutions. Size 8½ x 11 in. 48 pp.

The Pfaudler Company, Rochester, N. Y.

581. *Glass Lined Steel Laundry Chute.* Catalog describing a glass lined steel laundry chute with flushing ring at top and drain connection at bottom, specifications, dimensions and details adapted to hospitals and hotels. 14 pp. Ill. 5⅛ x 7⅜ in.

LIGHTING—See also Electrical Equipment

Frank Adam Electric Co., 3649 Bell Ave., St. Louis, Mo.

629. *The Control of Lighting in Theatres.* A book describing means for complete control of lighting the stage, auditorium and other parts of theatres with distribution schedules and specifications. Also applications of control to Masonic buildings, schools and colleges. 32 pp. Ill. 8 x 11 in.

E. Erikson Electric Co., 6 Portland St., Boston, Mass.

613. *Erikson Reflectors, Catalog No. 90.* Description of and details for installing reflectors in show windows, display cases, art galleries, rug racks, banks, churches, and other buildings. 32 pp. Ill. 6¼ x 9½ in.

I. P. Frink, Inc., 24th St. and 10th Ave., New York.

150. *Light Service for Hospitals. Catalogue 421.* A booklet illustrated with photographs and drawings, showing the types of light for use in hospitals, as operating table reflectors, linolite and multilite concentrators, ward reflectors, bed lights and microscopic reflectors, giving sizes and dimensions, explaining their particular fitness for special uses. Size 7 x 10 in. 12 pp.

218. *Picture Lighting. Booklet 422.* A pamphlet describing Frink Reflectors for lighting pictures, art galleries, decorated ceilings, cove lighting, the lighting of stained glass, etc., and containing a list of private and public galleries using Frink Reflectors. 24 pp. Ill. 5¼ x 7 in.

219. *Frink Reflectors and Lighting Specialties for Stores. Catalog No. 424.* A catalog containing a description of the Frink Lighting System for Stores; the Synthetic System of Window Illumination; and a number of appliances to produce the most effective lighting of displayed objects. 20 pp. Ill. 8 x 11 in.

220. *Frink Lighting Service for Banks and Insurance Companies. Reflectors. Catalog No. 425.* A very interesting treatise on the lighting of offices; with details of illustrations and description of lamps and reflectors. Contains a list, covering several pages, of banks using Frink Desk and Screen Fixtures. 36 pp. Ill. 8¼ x 11 in.

Harvey Hubbell, Inc., Bridgeport, Conn.

401. *Hubbell Flush Door Receptacles.* Description of a safe, convenient and practical wall outlet de luxe for fine residences, clubs, hotels, public buildings and offices. 4 pp. Ill. 8 x 10 in.

Mitchell Vance Co., Inc., 503-511 West 24th St., New York, N. Y.

369. *Catalog No. 25.* A descriptive catalog, with prices, of the "T. R. B." Lighting Unit, for perfect distribution of light without glare and without shadows. 24 pp. Ill. 8 x 10 in.

LIME

The Ohio Hydrate & Supply Co., Woodville, Ohio.

494. *A Job that Took a Million Years.* A description of how limestone is formed and how it is later converted into lime. All the processes are shown in detail and the uses of lime are illustrated. 16 pp. Ill. 8½ x 11 in.

LINCRUSTA-WALTON—See also Wall Covering

The Lincrusta-Walton Company, Hackensack, N. J.

519. *Lincrusta-Walton.* This book gives directions for buying, caring for and applying Lincrusta-Walton; together with color chart and many pages showing patterns. 67 pp. 8½ x 11 in. Ill. Bound in boards.

LOCKERS, STEEL—See Factory Equipment

LUMBER

Arkansas Soft Pine Bureau, Little Rock, Ark.

649. *Arkansas Soft Pine Handbook.* An exceptionally well prepared book containing technical descriptions, grading rules, standard molding designs including those by the American Institute of Architects and the National Lumber Manufacturers' Association. Price 50 cents. 82 pp. Ill. 8½ x 11 in.

E. L. Bruce Co., Memphis, Tenn.

533. *Now the Cedar Clothes Closet.* A book illustrated in colors describing "Bruce Cedaline," for lining clothes closets as a complete protection against moths. 12 pp. Ill. 4¼ x 6 in.

The Long-Bell Lumber Co., R. A. Long Building, Kansas City, Mo.

203. *From Tree to Trade.* This book tells the story of the manufacture of lumber. Gives an idea of the scope of the business and the care and attention given to the manufacture and grading of Long-Bell trade-marked products. 100 illustrations. 48 pp. 8½ x 11 in.

The Pacific Lumber Company of Illinois, 2060 McCormick Bldg., Chicago, Ill.

363. *Construction Digest*—The use of California Redwood in residential and industrial construction. Contains illustrations, grading rules, specifications and other technical data for architects and builders. 16 pp. Ill. 8½ x 11 in.

364. *Engineering Digest*—The use of California Redwood in industrial construction and equipment for factories, railroads, mines and engineering projects. 16 pp. Ill. 8½ x 11 in.

LUMBER, ASBESTOS

Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa.

54. *Ambler Asbestos Building Lumber.* Catalog illustrated. Describes uses of this fireproof product for both exteriors and interiors. Tables of sizes and illustrations of various types of buildings in which it has been used. Size 8½ x 11 in. 32 pp.

MANTELS

Edwin A. Jackson & Bro., Inc., 50 Beekman St., New York.

90. *Wood Mantels. Portfolio.* Wood mantel designs of various types and openings, giving dimensions, projections and showing fireplace grate designs. Size 9 x 6¼ in. 32 pp.

MARBLE—See Stone

The Georgia Marble Co., Tate, Pickens Co., Ga., New York Office, 1226 Broadway.

634. *Why Georgia Marble is Better.* Booklet 3⅜ x 6 in. Gives analysis, physical qualities, comparison of absorption with granites, opinions of authorities, etc.

635. *Convincing Proof.* Booklet 3⅜ x 6 in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of architects and sculptors.

METALS—See also Iron and Steel—Roofing

American Brass Co., Main Office, Waterbury, Conn.

138. *Price List and Data Book.* Illustrated. Loose-leaf Catalog. Covers entire line of Sheets, Wire Rods, Tubes, etc., in various metals. Useful tables. Size 3⅞ x 7 in. 168 pp.

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.

452. *Reference Book. Pocket Edition.* Covers the complete line of Sheet and Tin Mill Products. 168 pp. Ill. 2½ x 4½ in.

Bridgeport Brass Co., Bridgeport, Conn.

483. *Seven Centuries of Brass Making.* A brief history of the ancient art of brass making and its early (and even recent) method of production—contrasted with that of the Electric Furnace Process—covering tubular, rod and ornamental shapes. 80 pp. Ill. 8 x 10½ in.

Copper & Brass Research Association, 25 Broadway, New York, N. Y.

466. *How to Build a Better Home.* A book on building written for the prospective builder. It contains keyed illustrations of houses and details of houses and should be of value to architects in explaining technical terms to clients. 30 pp. Ill. 7¾ x 10½ in.

Rome Brass & Copper Company, Rome, N. Y.

473. *Price List No. 70.* A loose-leaf binder containing full price list of Rome Quality products, together with useful tables. 5⅛ x 7¼ in.

METAL MOLDINGS

National Metal Molding Co., Pittsburgh, Pa.

152. *Hand-book for the Man on the Job.* An illustrated book of fittings and methods with description and instructions for installing National Metal Molding under all conditions; a book meant to be conveniently carried and used on the job. Size 4⅝ x 6 in. 102 pp.

MILLWORK—See also Lumber—Building Construction—Doors and Windows

MORTAR—See also Cement

Louisville Cement Company, Inc., Louisville, Ky.

311. *Brixment, the Perfect Mortar.* The reading of this little book gives one a feeling that definite valuable information has been acquired about one of the oldest building materials. Modern science has given the mason a strong water-resisting mortar with the desirable "feel" of the best rich lime mortar. 16 pp. Ill. in colors. 5½ x 7¾ in.

OFFICE EQUIPMENT

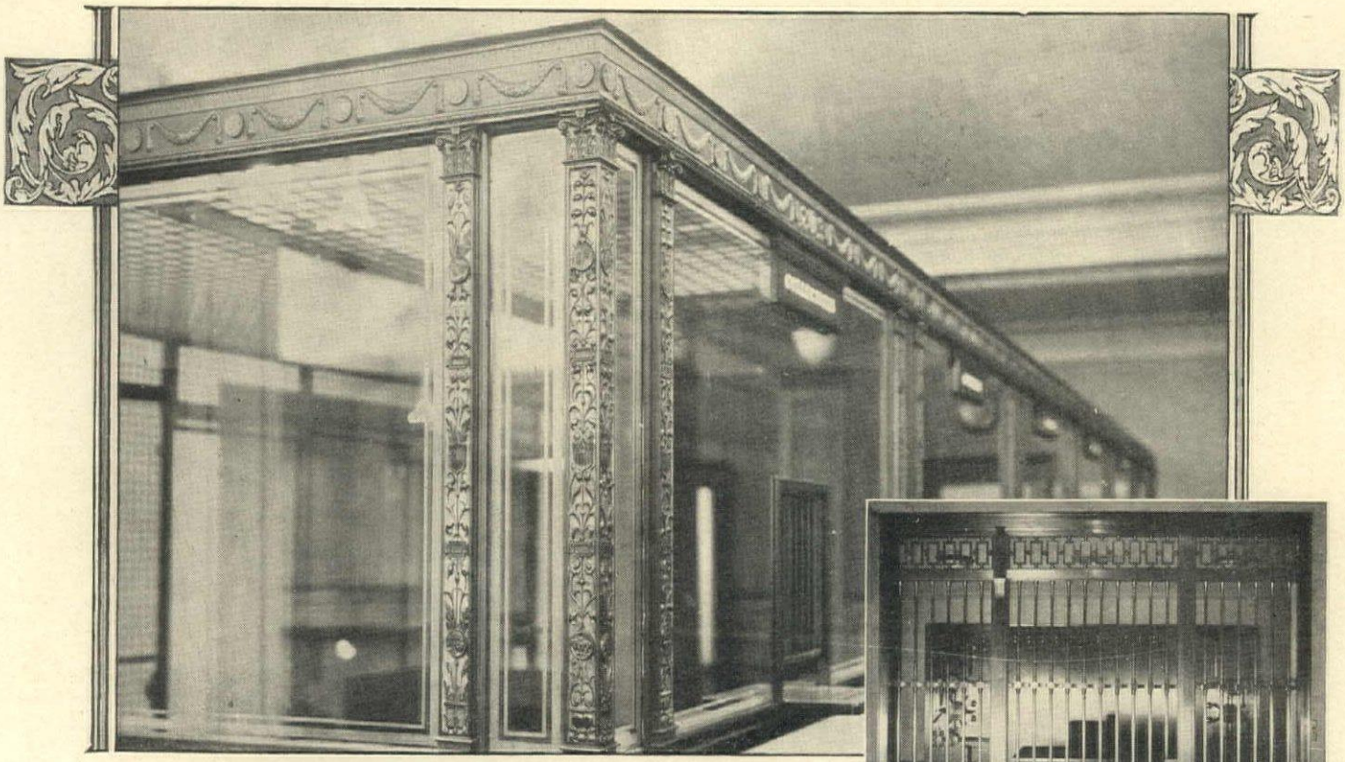
The General Fireproofing Co., Youngstown, Ohio.

686. *Allsteel Office Furniture.* A descriptive catalog of steel office furniture, filing cabinets, desks, tables, counterheights, steel shelving, fireproof safes. 96 pp. Ill. 5½ x 7¾ in.

ORNAMENTAL IRON AND BRASS

The American Brass Co., Waterbury, Conn.

139. *Illustrated Pamphlets.* Describes the use and adaptability of Extruded Architectural Shapes, Benedict Nickel, Brass and Copper Pipe in Iron Pipe sizes for plumbing installations. 8½ x 11 in.



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PAINTS, STAINS, VARNISHES—See also Waterproofing

Joseph Dixon Crucible Co., Jersey City, N. J.

324. *Dixon's Silica-Graphite Paint.* A pamphlet describing the physical properties of silica-graphite paint and especially the wide difference between it and other protective paints. Contains also sample color card with specifications. 20 pp. and 6 pp. in color card. Ill. 3¼ x 6¼ in.

Samuel H. French & Co., Philadelphia, Pa.

312. *French's Paints and Varnishes.* A catalog and price list of paints, stains, varnishe , mortar, mortar colors, cement colors and materials for plasterers, with instructions for selection of colors, etc. 44 pp. Ill. 4 x 8 in.

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

389. *Color Harmony.* Color card for glass finish and flat finish together with useful notes on painting and a collection of approximate formulas for obtaining the colors shown on the color card. 8 pp. Ill. 3⅝ x 8½ in.

390. *Dutch Boy Flatting Oil.* A booklet describing the characteristics of flat and glass paints, volatile thinners and a treatise on methods of obtaining special paint surfaces together with formulas. 24 pp. 3½ x 6 in.

The New Jersey Zinc Co., 160 Front St., New York, N. Y.

227. *Painting Specifications.* A booklet full of useful information concerning paint mixtures for application on various surfaces.

Parker, Preston & Co., Inc., Norwich, Conn.

357. *Art in Shingle Stains.* Description of waterproof, odorless shingle stains and waterproof coating for walls and floors with covering capacities and directions for use. 27 pp. 3 x 4½ in.

Ripolin Co., The, Cleveland, Ohio.

419. *Ripolin Specification Book.* 8 x 10¼ in., 12 pp. Complete architectural specifications and general instructions for the application of Ripolin, the original Holland Enamel Paint. Directions for the proper finishing of wood, metal, plaster, concrete, brick and other surfaces, both interior and exterior, are included in this Specification Book.

Standard Varnish Works, 443 Fourth Ave., New York, N. Y.

565. *Immaculate Distinction.* A book describing Satinette Enamel, and enduring white enamel for interior and exterior use. Specifications are given for use on new and old work, metal, plaster, etc. 22 pp. Ill. 5 x 7 in.

566. *Architectural Reference Book, Third Edition.* A readily accessible and concise compilation of practical finishing information from which specifications readily can be written on varnishes, stains, fillers and enamels. 24 pp. Ill. in colors with samples on wood, etc. 8½ x 11 in.

PARTITIONS

J. G. Wilson Corp., 2 East 36th St., New York.

618. *Folding Partitions and Sectionfold Partitions.* Two catalogs describing folding partitions operated on pivoted castors working in narrow flush floor track with overhead guide track, all doors equal width. 16 and 14 pp. Ill. 8½ x 11 in.

PILES, CONCRETE

Raymond Concrete Pile Co., 140 Cedar St., New York.

156. *Raymond Concrete Piles—Special Concrete Work.* A booklet with data concerning the scope of the Raymond Concrete Pile Co., for special concrete work. It classifies piles, showing by illustration, text and drawings, the relative value of special shape and manufacture of piles. It gives formulæ for working loads, and relative economy. Size 8½ x 11⅛ in. 60 pp.

PIPE—See also Metals

Bridgeport Brass Company, Bridgeport, Conn.

556. *Brass Pipe and Piping; When and How it Should be Used. Bulletin No. 15.* This book contains valuable tables, charts and examples for the design of hot water installations, with illustrations of details and connections. It also discusses the use of pipe of different materials; various processes for preventing rust and corrosion in iron and steel pipes. It is a valuable treatise for all architects and engineers. 47 pp. Ill. 8 x 10½ in.

A. M. Byers Company, Pittsburgh, Pa.

679. *What is Wrought Iron?* Bulletin 26 A. Contains the definition of wrought iron, methods of manufacture, chemical and physical characteristics; advantages of wrought iron as a pipe material; service records from old buildings equipped with Byers Genuine Wrought Iron Pipe. How to tell the difference between iron and steel pipe. 40 pp. Ill. 8 x 10¾ in.

680. *The Installation Cost of Pipe,* Bulletin 38. Contains cost analysis of a variety of plumbing, heating, power and industrial systems, with notes on corrosive effects in different kinds of service. 32 pp. Ill. 8 x 10¾ in.

The Duriron Company, Dayton, Ohio.

548. *Duriron Acid-Proof Drain Pipe.* This is a handbook for the architect and engineer on Duriron drain pipe fittings, exhaust fans, sinks, etc. Contains specifications for installations, detail dimensioned drawings, reports on corrosive tests, long partial list of successful installations, etc. 20 pp. Ill. 8 x 10½ in.

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

670. *National Bulletin No. 25B. 3rd Edition.* Devoted to the installation of steel pipe in large buildings, architectural anti-corrosion engineering, gas piping, specifications and tables of strength and properties. 74 pp. Ill. 8½ x 10¾ in.

Rome Brass and Copper Company, Rome, N. Y.

509. *Bulletin No. 1. Seamless Brass Pipe.* This bulletin illustrates in colors nine installations of hot water heaters between range boiler, basement furnace, tank and instantaneous heaters for one and two-family houses and larger buildings. Contains also a number of estimating and designing tables, rules and formulas. 22 pp. Ill. 7½ x 11¾ in.

A. Wyckoff & Son Co., Elmira, N. Y.

397. *Wyckoff Wood Pipe. Catalog No. 42.* A description of machine-made woodstave pipe and Wyckoff's express steam pipe casing. Contains also a number of pages of useful formulas and tables for hydraulic computations. 92 pp. Ill. 6 x 9 in.

PIPE COVERING

The Philip Carey Co., Lockland, Cincinnati, Ohio.

379. *Pipe and Boiler Coverings. Catalog 1362.* A catalog and manual pipe and boiler coverings, cements, etc. Contains a number of valuable diagrams and tables. 71 pp. Ill. 6 x 9 in.

PLUMBING EQUIPMENT—See also Drains

Bridgeport Brass Co., Bridgeport, Conn.

461. *Plumbing Supplies.* Catalog of adjustable swivel traps; basin and bath supplies and waste; basin and sink plugs; low tank bends; iron pipe sizes of brass pipe. 20 pp. Ill. 8 x 10½ in.

Crane Company, 836 So. Michigan Ave., Chicago, Ill.

240. *General Plumbing Catalogue.* A very complete and well illustrated booklet describing the complete line of Crane plumbing goods. 80 pp. 8½ x 11 in.

Philip Haas Company, Dayton, Ohio.

524. *Catalog B.* This catalog contains a complete description of the full line of waterclosets made by this company, together with illustrations of combinations for every type or class of service. Wall hanging closets are an innovation here fully described. A feature of interest to designers is the series of roughing in plates with dimensions. 91 pp. Ill. 6⅛ x 9¼ in.

Jenkins Bros., 80 White St., New York, N. Y.

230. *Jenkins Valves for Plumbing Service.* This booklet contains all necessary information about Jenkins Valves commonly used in plumbing work. 16 pp. Ill. 4¼ x 7¼ in. Stiff paper cover.

Kohler Company, Kohler, Wisconsin.

209. *"Kohler of Kohler."* A booklet on enameled plumbing ware describing processes of manufacture and cataloging staple baths, lavatories, kitchen sinks, slop sinks, laundry trays, closet combinations. 48 pp. Ill. 5⅛ x 8 in. Roughing-in Measurement Sheets 5 x 8 in.

531. *Catalog F.* This is a complete catalog of Kohler enamelled ware for plumbing installations, together with high grade fittings. There is also a brief and interesting description of the manufacture of high grade enamelled ware and a statement of the facts about Kohler village one of the discussed experiments in modern industrial town building. 215 pp. cloth bound. Ill. 7½ x 10⅜ in.

Speakman Company, Wilmington, Del.

691. *Speakman Showers and Fixtures, Catalog H.* A complete catalog treating of everything pertaining to the mixing and control of water used in all kinds of shower and tub baths, lavatories and sinks, also strainers, drains and traps. Complete roughing-in measurements are included. A valuable catalog. 20 pp. Ill. 4½ x 7½ in.

The Vulcan Brass Manufacturing Co., Cleveland, Ohio.

214. *Paragon Ball Bearing Self Closing Faucets, Bibbs and Stops—Catalog B.* Illustrated book showing sectional drawings, illustrations and text describing "Paragon" self-closing work, high pressure ball cocks, parts and valves.

678. *Paragon Brass Goods, Catalog C.* New catalog showing sectional drawings, illustrations and text describing exclusive feature of "Paragon" self closing basin and sink faucets and stops; high pressure ball cocks, vitreous china bubblers, compression and quick-compression work. 60 pp. Ill. 7½ x 10½ in.

POTTERY AND FINE TILE

The Rookwood Pottery Company, Cincinnati, Ohio.

410. *Rookwood, Cincinnati.* A booklet dealing in a general way with the various products of this well known company. It is illustrated and contains 8 pages, 6 x 9 in. The company issues many small booklets, each one dealing with a special product.

PUMPS

The Dayton Pump and Manufacturing Company, Dayton, Ohio.

475. *Electric House Pumps and Water Supply Systems.* A heavy paper binder containing illustrated bulletins 8½ x 11 in. These bulletins describe pumps as well as complete automatic electric and gasoline water supply systems and all accessories, together with specifications, detail drawings and tables of dimensions. 48 pp.

REFRIGERATION

The Automatic Refrigerating Co., Hartford, Conn.

298. *The Mechanics of Automatic Refrigeration and Automatic Refrigeration for Hospitals and Sanatoriums.* Two essential booklets for the library of designers and specification writers. 24 and 28 pp. Ill. 8½ x 11 in.

370. *Automatic Refrigeration for Retail Markets.* A valuable treatise on the subject matter mentioned in the title. 30 pp. Ill. 8½ x 11 in.

In Philadelphia

The Pipe Basis for Modern Building

THE substantial character of these buildings situated in Pennsylvania's largest city, is but the reflection of the substantial character of the materials used in their construction — including "NATIONAL" Pipe. On its record of installations this tubular material may be termed "*Philadelphia's Preferred Pipe*" for building service.

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NATIONAL TUBE COMPANY, PITTSBURGH, PA.

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REFERENCE LIST OF BUSINESS LITERATURE—Continued

REFRIGERATION

Baker Ice Machine Co., Inc., Omaha, Nebraska.

661. *Baker System Refrigeration.* A catalog explaining the application of refrigeration for hotels, hospitals, institutions and restaurants requiring up to 50 ton daily capacity including mechanical details and specifications. 20 pp. Ill. 9 x 12 in.

Jamison Cold Storage Door Co., Hagerstown, Md.

569. *Heavy Duty Cold Storage Doors. Catalog No. 10.* Complete description of both hinged and sliding cold storage doors for every equipment. Also description of cold storage windows and ice chutes. 79 pp. Ill. 5¾ x 9 in.

REFRIGERATORS

The Jewett Refrigerator Company, 27 Chandler Street, Buffalo, N. Y.

231. *Refrigeration and Health. Vital Facts You Ought to Know.* A booklet outlining the basic requirements of a good refrigerator and explaining how to use a refrigerator to secure best results. 16 pp. Ill. 4¾ x 7¾ in.

655. *Manual of Refrigerators.* This manual completely describes the construction of refrigerators for use in hotels, clubs, hospitals, institutions and residences, with specifications. Numerous plans showing size and arrangement of refrigerators in kitchens, service and lunch rooms are included. 30 pp. Ill. 8½ x 11 in.

McCray Refrigerator Co., Kendallville, Ind.

472. *Refrigerators and Cooling Rooms. Cat. 53.* A catalog of cooling equipment for hotels, restaurants, hospitals, institutions, colleges and clubs. Catalog No. 96 deals with refrigerators for residences. 52 pp. each. Ill. in colors. 7½ x 10 in.

REINFORCING STEEL—See also Concrete, Reinforced

Rail Steel Products Association, Reinforcing Bar Division, Arcade Bldg., St. Louis, Mo.

582. *Rail Steel for Concrete Reinforcing.* A book describing the manufacturing, fabrication and physical properties of re-rolled, billet and rail steel bars with specifications for their use. 84 pp. Ill. 8½ x 11 in.

RESTAURANT EQUIPMENT—See Kitchen Equipment

ROOFING—See also Slate—Metals—Shingles

American Brass Company, Main Office, Waterbury, Conn.

515. *Copper Roofing. Service Sheet.* This service sheet contains details for laying copper roofing together with standard specifications. 17 x 22 in. folding to 8½ x 11 in. printed both sides.

American Sheet & Tin Plate Co., Frick Building, Pittsburgh, Pa.

463. *Copper—its Effect Upon Steel for Roofing Tin.* Describes the merits of high grade roofing tin plates and the advantages of the copper-steel alloy. 28 pp. Ill. 8½ x 11 in.

Asbestos Shingle, Slate & Roofing Co., Ambler, Pa.

53. *Ambler Asbestos Corrugated Roofing.* Catalog gives complete data for specifying, drawings, methods of application, tables, etc. Size 8½ x 11 in. 20 pp.

The Barber Asphalt Company, Land Title Bldg., Philadelphia, Pa.

422. *Standard Trinidad Built-Up Roofing Specifications.* Contains two specifications for applying a built-up roof over boards and two for applying over concrete. Gives quantities of materials and useful data. 8 pp. 8 x 10½ in. Ask at same time for Good Roof Guide Book. 32 pp. Ill. 6 x 9 in.

John Boyle & Co., Inc., 112-114 Duane St., New York, N. Y.

212. *Boyle's Bayonne Roof and Deck Cloth.* List B 93. A prepared roofing canvas guaranteed waterproof for decks and the roofs and floors of piazzas, sun-parlors, sleeping porches, etc.

The Philip Carey Co., Lockland, Cincinnati, Ohio.

378. *Architects' Specification Book on Built-Up Roofing.* A manual for detailers and specification writers. Contains complete details and specifications for each type of Carey Asphalt Built-Up Roof. 20 pp. Ill. 8½ x 11 in.

The Copper and Brass Research Association, 25 Broadway, New York, N. Y.

468. *Copper Roofing.* Weights of various roofing materials. Up-to-date practice in the laying of copper roofs—Batten or wood rib method. Standing seam method, flat copper roofs. Copper shingles. Suggestions for avoiding error and obtaining the full value of copper. Decorative effects and how to obtain them. Flashings, reglets, gutters and leaders. Cornices. Copper-covered walls. Specifications. 32 pp. Ill. 8½ x 11 in.

The Edwards Manufacturing Company, Cincinnati, Ohio.

535. *Shingles and Spanish Tile of Copper.* This book, illustrated in colors, describes the forms, sizes, weights and methods of application of roof coverings, gutters, downspouts, etc., of copper. 16 pp. Ill. in special indexed folder for letter size vertical files.

Ludowici-Celadon Co., Chicago, Ill.

120. *Roofing Tile.* A detailed Reference for Architects' Use. Sheets of detailed construction drawings to scale of tile sections of various types and dimensions, giving notes of their uses and positions for various conditions of architectural necessity. Size 9½ x 13½ in. 106 plates.

154. *The Roof Beautiful.* Booklet. Well illustrated with photographs and drawings, giving history and origin of roofing tile, and advantages over other forms of roofing. Types shown by detailed illustrations. Size 8 x 10¼ in. 32 pp.

The Richardson Company, Lockland, Cincinnati, Ohio.

492. *Viskalt Membrane Roofs.* Contains specifications for applying Membrane roof over boards and also for applying over concrete. Illustrated with line drawings of several approved methods of flashings. 3 pp. 8½ x 11 in.

Rising and Nelson Slate Company, 101 Park Ave., New York, N. Y.

496. *Tudor Stone Roofs.* This leaflet discusses colors and sizes of Tudor hand-wrought slates; deals with the service given to architects and tells how the material is quarried for each product after careful drawings and specifications are prepared in co-operation with architects. Special grades are described in detail and illustrations are given of buildings with Tudor slate roofs. Contains also specifications of laying slate. 4 pp. Ill. 8½ x 11 in.

571. *Tudor Stone Roofs.* A brochure describing the 7 special grades of Tudor Stone and the 7 grades of commercial slate produced by this company with illustrations of many structures on which it has been used. 28 pp. Ill. 6 x 9½ in.

Vendor Slate Co., Easton, Pa.

333. Occasional brochures on architecturally pertinent phases of roofing slate sent on request. See also listing under Slate.

ROOF-LIGHTS—See Glass Construction

SANDSTONE—See Stone

SASH—See Doors and Windows

SCREENS

American Wire Fabrics Company, 208 So. La Salle St., Chicago, Illinois.

305. *Catalog of Screen Wire Cloth.* A catalog and price list of screen wire cloth, black enamelled, galvanized, aluminoid, copper, bronze. 30 pp. Ill. 3½ x 6¼ in.

The Higgin Manufacturing Co., 5th and Washington Ave., Newport, Ky.

353. *Screen your Home in the Higgin Way.* A description of Higgin door and window screens with practical data. 16 pp. Ill. 8½ x 11½ in.

New Jersey Wire Cloth Company, 614 South Broad St., Trenton, N. J.

409. *A Matter of Health and Comfort. Booklet No. 2331.* A booklet telling all about screens, the durability of copper and its superiority over all other metals for screen purposes. 16 pp. Ill. 5 x 7¾ in.

SHELVING—STEEL

Art Metal Construction Company, Inc., Jamestown, New York.

543. *Art Metal Steel Shelving.* Describes steel shelving for the storage of goods from stationery to heavy castings in stock and storerooms; for the display of goods in retail establishments; for the orderly disposal of material in vaults and offices. 34 pp. Ill. 6 x 9 in.

SHINGLES—See also Roofing

The Philip Carey Co., Lockland, Cincinnati, Ohio.

381. *Carey Asfaltslate Shingles.* Folder containing illustrations of attractive buildings and residences on which Carey Asfaltslate Shingles have been used. Describes this type of shingle, showing its special claims and advantages.

SIDEWALK LIGHTS—See also Vault Lights

SLATE—See also Roofing

Vendor Slate Co., Inc., Easton, Pa.

332. *The Vendor Book of Roofing Slate for Architects.* Contains original information on slate in various architectural uses; history, geology, sundry practical matters; complete descriptive classification; extended treatise on architectural roof design and specifications. 24 pp. Ill. 8½ x 11 in.

STAINS—See also Paints, Stains, Varnishes

STEEL JOIST CONSTRUCTION

Truscon Steel Co., Youngstown, Ohio.

641. *Truscon Steel Joist Data Book.* Complete data of steel joists giving properties, dimensions, safe loads, coefficients of deflection, details of connections, specifications, directions for installations. 32 pp. Ill. 8½ x 11 in.

STONE

The Appalachian Marble Company, Knoxville, Tenn.

503. *Appalachian Tennessee Marble.* A new booklet on the qualities to be demanded in marble and a treatise on Tennessee marble by T. Nelson Dale (Retired Geologist, U.S.G.S.). Contains also illustrations of the plant of the company, buildings in which Appalachian Tennessee Marble has been used and four-color process plates of the six major Appalachian marbles. In tough paper indexed cover. 12 pp. Ill. 8½ x 11 in.

REFERENCE LIST OF BUSINESS LITERATURE—Continued

STONE

Indiana Limestone Quarrymen's Assn., P. O. Box 503, Bedford, Ind.

265. *Folders, Series D.* Structural detail and data sheets showing methods of detailing cut stone work in connection with modern building construction. 4 pp. each. 8½ x 11 in.

366. *Standard Specifications for Cut Stone Work.* This is Vol. III, Series "A-3," Service publications on Indiana Limestone, containing Specifications and Supplementary Data, relating to best methods of specifying and using this stone for all building purposes. This valuable work is not for general distribution. It can be obtained only from a Field Representative of the Association or through direct request from architect written on his letterhead. 56 pp. Ill. 8½ x 11 in.

693. *Indiana Limestone Homes, Series B. Vol. 5.* A portfolio containing sixteen designs for small and moderate-sized dwellings of different styles of architecture and sizes of lots. Plot plan, floor plans, perspective and description. Free to architects and draftsmen requesting same on employer's business stationery. 84 pp. Ill. 8½ x 11 in.

National Building Granite Quarries Asso., Inc., 31 State Street, Boston, Mass.

416. *Architectural Granite No 1 of the Granite Series.* This booklet contains descriptions of various granites used for building purposes; surface finishes and how obtained; profiles of moldings and how to estimate cost; typical details; complete specifications and 19 plates in colors of granite from various quarries. 16 pp. Ill: 8½ x in.

STORE FRONTS

Brasco Mfg. Co., Chicago, Ill.

56. *Brasco System of Hollow Metal Store Front Design.* Folio of Detail Sheets. Full size detail sheets 1, 2, 3 and 4. Corner bar, division bar, reverse bar and three-way bar, head transom sill and jamb sections. Sheets 18 x 22½ in.

57. *Hester System Store Front Construction and Design.* Folio of Detail Sheets. Full size detail sheets, a, b, c and d, of hollow metal store front construction, giving full size sections of head transoms, sill and jamb with moulding profiles and bar cover to house awning construction. Sheets 18 x 22½ in.

Detroit Show Case Co., Detroit, Mich.

77. *Designs.* A booklet. Store fronts and display window designs, giving plans and elevations, and descriptions. Size 9¼ x 12 in. 16 pp.

78. *Details.* Sheets of full size details of "Desco" awning transom bar covers, sill covers, side, head and jamb covers, ventilated hollow metal sash and profile of members. Size 16 x 21½ in. 3 sheets.

The Kawneer Company, Niles, Mich.

467. *A Collection of Successful Store Front Designs.* Illustrations of recently erected modern store fronts with all framing covered with solid copper. Maximum show window surface secured by these designs. Many classes of occupancy shown. 64 pp. Ill. 6¾ x 9¼ in.

530. *Catalog L, 1922-1923 Edition.* Details of solid copper store fronts construction. This is a treatise on the installation of copper store fronts and contains sectional and detail views of Kawneer sash, corner and division bars, jambs, sill and transom bar coverings and other members. Intended for the detailer. 32 pp. Ill. 8½ x 11 in.

STOVES

New Process Stove Co., Division of American Stove Co., 4301 Perkins Ave., Cleveland, Ohio.

457. *Catalog No. 148.* A complete catalog of gas ranges from a single cover hot plate to the most elaborate hotel range. Also lists gas heaters for rooms. 110 pp. Ill. 7 x 10 in.

Reliable Stove Company, Division of American Stove Co., Cleveland, Ohio.

460. *Reliable Angleiron Gas Ranges.* A pamphlet illustrating hot plates, laundry stoves and a complete line of gas cooking stoves and ranges equipped with the Lorain Oven Heat Regulator. 8 pp. Ill. 8 x 11 in.

STUCCO—See also Cement

Portland Cement Association, 347 Madison Ave., N. Y. C.

594. *Portland Cement Stucco.* Illustrated leaflet of recommended practice for Portland Cement Stucco. Contains data on materials, proportions, application and curing. Table of colors for various tints, photographs of surface textures and drawings of construction details also given. 15 pp. Ill. 8½ x 11 in.

STUCCO BASE

The Bishopric Manufacturing Company, Cincinnati, Ohio.

451. *Bishopric for All Time and Clime.* A booklet describing Bishopric materials; giving building data, detailed drawings and specifications. Illustrated with half tones from photographs of houses built of Bishopric materials. 52 pp. Ill. 8 x 10½ in.

TELEPHONES

Automatic Electric Co., 945 W. Van Buren St., Chicago, Ill.

683. *Architect's Specifications for Interior Telephone System.* A complete and short specification for the installation of interior telephone systems adapted to all kinds of buildings and uses. 4 pp. 8½ x 11 in.

684. *The Straight Line.* A booklet devoted to interior communication by use of private automatic exchanges and the P-A-X Code Calls. Description of switchboards, instruments and accessories. 38 pp. Ill. 5 x 8 in.

Stromberg-Carlson Telephone Mfg. Co., Rochester, New York.

304. *Inter-Communicating Telephone Systems. Bulletin No. 1017.* A pamphlet giving just the information required for the installation of intercommunicating systems from 2 to 32 stations capacity. 15 pp. Ill. 7¾ x 10 in.

TERRA COTTA

Atlantic Terra Cotta Company, 350 Madison Avenue, New York, N. Y.

425. *Questions Answered.* A brief but full description of Atlantic Terra Cotta and its use in buildings. 32 pp. Ill. 5¼ x 7 in.

551. *Monthly Magazine, Atlantic Terra Cotta.* January issue illustrates use of terra cotta in combination with stone in the Scottish Rite Cathedral, San Antonio, Texas. 16 pp. Ill. 8½ x 11 in.

National Terra Cotta Society, 19 West 44th St., New York City.

664. *Standard Specifications.* Contains complete detailed specifications for the manufacture, furnishing and setting of terra cotta, a glossary of terms relating to terra cotta and a short form specification for incorporating in architect's specification. 12 pp. 8½ x 11 in.

666. *Color in Architecture.* An illustrated treatise upon the principles of color design and appropriate technique. 38 pages. Ill. 8½ x 11 in.

667. *Present Day Schools.* Illustrating 42 examples of school building architecture with an article on school house design by James O. Betelle, A. I. A. 32 pp. Ill. 8½ x 11 in.

668. *Better Banks.* Illustrating many banking buildings in terra cotta with an article on its use in bank design by Alfred C. Bossom, architect. 32 pp. Ill. 8½ x 11 in.

The Northwestern Terra Cotta Co., 2525 Clybourn Ave., Chicago, Ill.

96. *Architectural Terra Cotta.* A collected set of advertisements in a book, giving examples of architectural terra cotta, ornamental designs and illustrations of examples of façades, of moving-picture houses, office buildings, shops, vestibules and corridors in which Northwestern Terra Cotta was used. Size 8½ x 11 in. 78 pp.

TILE—ORNAMENTAL

The Associated Tile Manufacturers, Beaver Falls, Pa.

358. *Home Suggestions.* A new book in colors describing and illustrating the use of tiles in floors, walls, ceilings, fireplaces, garages, for exterior embellishment, etc. Full of suggestions. Sent to architects on request. 7½ x 10⅝ in.

359. *Basic Information on Tiles.* Book giving practical information on ingredients, processes, gradings, sizes, shapes, colors, finishes and nomenclature. Sent to architects on request. 7½ x 10⅝ in.

374. *Basic Specifications for Tilework and Related Documents. No. K-300.* This specification is prepared in a very systematic manner for the use of architects and builders. It is printed on one side of a sheet with facing page blank to receive memoranda. Various colored sheets make reference easy and simplify greatly the work of a specification writer in specifying tilework. 38 pp. 7½ x 10⅝ in.

375. *"Work Sheets" for Specification Writers.* To be used in connection with "Basic Specification for Tilework and Related Documents." 16 sheets 7½ x 10⅝ in.

TIME CLOCKS—See Clocks

TOILET PARTITIONS—See Wainscoting

TRIM—See also Doors and Windows

TRUSSES—See Building Construction

VARNISH—See Paints

VAULT LIGHTS

American Three Way Luxfer Prism Co., 13th Street and 55th Court, Chicago, Ill.

424. *Daylighting. Catalog 21.* A complete catalog on glass prisms for use in transoms, sidewalk and floor lights, skylights, etc., for lighting places inaccessible to direct daylight. Contains also measurements, specifications and other data required by designers. 42 pp. Ill. 8½ x 11 in.

VENTILATION—See Heating and Ventilation

VENTILATORS

The Burt Manufacturing Co., Akron, Ohio.

207. *General Catalogue* covering entire line of Ventilators, Exhaust Heads and Filters. Separate leaflets on each type of ventilator, vent and damper.

525. *The Great Outdoors Brought Inside.* In this book is a description of the new rectangular combination skylight and ventilator; the Burt fan ventilator for removing odors, fumes, etc., when atmospheric conditions interfere with the gravity process; and a table giving prices, dimensions, weights and gauges of iron of the Burt Ventilator. Some good general information about ventilators is included. 16 pp. Ill. 3⅜ x 6¼ in.

REFERENCE LIST OF BUSINESS LITERATURE—Continued

WAINSCOTING

The Vitrolite Company, Chamber of Commerce Building, Chicago, Ill.

648. *Toilet Partitions and Wainscoting. Architects Tile Bulletin No. 7.* Describing the uses of Vitrolite, its physical properties, details of installation and specifications. 32 pp. Ill. 8½ x 11 in.

WALL COVERING—See also Lincrusta-Walton

Standard Textile Products Co., 320 Broadway, New York, N. Y.

111. *Sanitas, Modern Wall Covering.* Folio. Plates of color renderings of various interiors, with suggestions for the library, living room, dining room, boudoir, kitchen and church wall covering, using Sanitas. Size 11½ x 6 in. 15 plates.

112. *Sanitas, and Its Uses.* Booklet. Text and color illustrations of Sanitas as a wall covering, with tables for wall and ceiling measurements. Notes on sanitary character, cleanliness and durability of Sanitas. Size 5 x 7 in. 28 pp. 6 color plates and 2 sample sheets.

113. *Sanalining Sanitas Lining and Prepared Lining.* Folder. Notes on durability and cleanly character of the above three products. Size 3¾ x 6 in.

114. *Hints to Decorators.* Booklet. Instructions and specifications for the application of Sanitas, with notes on finishes and material. Size 5 x 6¾ in. 20 pp.

WATER HEATERS

Ruud Manufacturing Co., Pittsburgh, Pa.

567. *Ruud Gas Water Heaters.* Bulletins in filing folder describing instantaneous automatic water heaters for small homes and special uses, multi-coil automatic storage systems, automatic storage systems and tank water heaters. Details for connections, hot water service and specifications. 19 pp. Ill. 8½ x 11 in.

589. *Ruud Automatic Storage Systems.* Catalog of automatic hot water storage systems for domestic, industrial and commercial uses. Details, capacities, dimensions and other data. 24 pp. Ill. 6 x 9 in.

590. *Ruud Multi-Copper-Coil Automatic Storage Systems.* Catalog describing automatic hot water storage systems of large capacity for large residences, apartment buildings, hotels, hospitals, gymnasiums and factories. Details, capacities and dimensions for complete line. 32 pp. Ill. 6 x 9 in.

WATERPROOFING—See also Dampproofing

Samuel Cabot, Inc., 141 Milk St., Boston, Mass.

340. *Cabot's Waterproofing Specialties.* Describes Dampproofing, Clear Brick Waterproofing and Clear Cement Waterproofing with specifications and covering data. 12 pp. Ill. 4 x 9 in.

The General Fireproofing Co., Youngstown, Ohio.

646. *The Waterproofing Handbook* (Sixth Edition). A revised edition of this valuable book treating of sub-structure and super-structure waterproofing, cement and wood floor preservatives, technical paints and coatings and GF waterproofings, preservatives and their uses. 72 pp. Ill. 8½ x 11 in.

Hydrex Asphalt Products Corp., 120 Liberty St., New York.

62. *Dampproofing Walls, Above and Below Grade.* Illustrated booklet. Uses and specifications of Hydrex Paint, Hydrex (Bitumen). Compound and Hydrex Waterproof Primer for walls above and below grade, stainproofing cut stone, acidproofing floors, etc., described. Size 8½ x 11 in. 8 pp.

WATER PURIFICATION

The R. U. V. Company, Inc., 165 Broadway, New York.

606. *Ultra Violet Ray Sterilization.* Bulletins treating of water sterilization for homes, hotels, office buildings, hospitals, schools, industrial plants, breweries, ice plants, swimming pools, water works and other places. Ill.

WATER SOFTENERS

The Permutit Company, 440 Fourth Ave., New York.

105. *Permutit (Water Rectification Systems.)* Illustrated booklet. Describes all methods of softening water, including the original Zeolite process. For homes, hotels, apartment houses, swimming pools, laundries and industrial plants. Size 8½ x 11 in. 32 pp.

482. *Bulletin No. 1600.* This bulletin treats of the value of soft water in the house and describes the Wayne Domestic Water Softening System. 6 pp. Ill. 8¼ x 10½ in.

Wayne Tank and Pump Co., Fort Wayne, Ind.

687. *Water Softening and Filtration.* A valuable treatise on the subject of slow-acting and quick-acting types of water softeners and their application to commercial, industrial and domestic uses. The construction of and uses for Wayne Pressure Filters are also adequately described. 32 pp. Ill. 8¼ x 10½ in.

WATER SUPPLY—See Pumps

WEATHER STRIPS

The Diamond Metal Weather Strip Co., Columbus, Ohio.

616. *The Diamond Way.* A catalog of full size details showing the application of Diamond metal weather strips to double hung and casement windows and doors with complete specifications. 34 pp. Ill. 8½ x 11 in.

The Higgin Manufacturing Co., 5th and Washington Ave., Newport, Ky.

354. *Higgin Metal Weather Strips.* A booklet of considerable value to architects and builders on the use of weather strips. Ask also for the companion book on "The Reason Why." Each booklet 12 pp. Ill. 6 x 9 in.

Monarch Metal Products Co., 5020 Penrose Street, St. Louis, Mo.

512. *Monarch Metal Weather Strips.* The publication embodies all the suggestions for advertising literature made by the Committee on Structural Service of the American Institute of Architects. It contains a treatise on inleakage around windows together with description of Monarch Metal Weather Strips. Contains many detail working drawings. 48 pp. Ill. 7½ x 10½ in.

WINDOWS—See Doors and Windows

WIRE AND CABLE—See Electric Wire and Cable

WOODWORK—See also Doors and Windows—Lumber

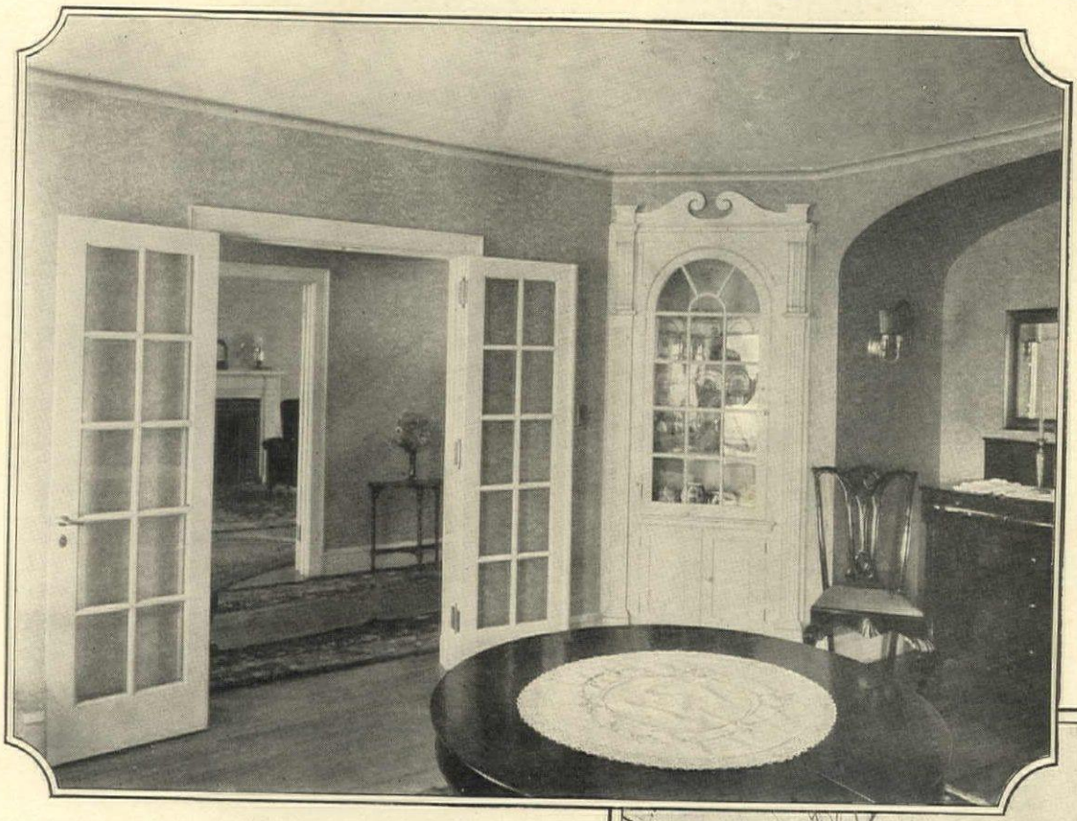
Curtis Companies Service Bureau, Clinton, Iowa.

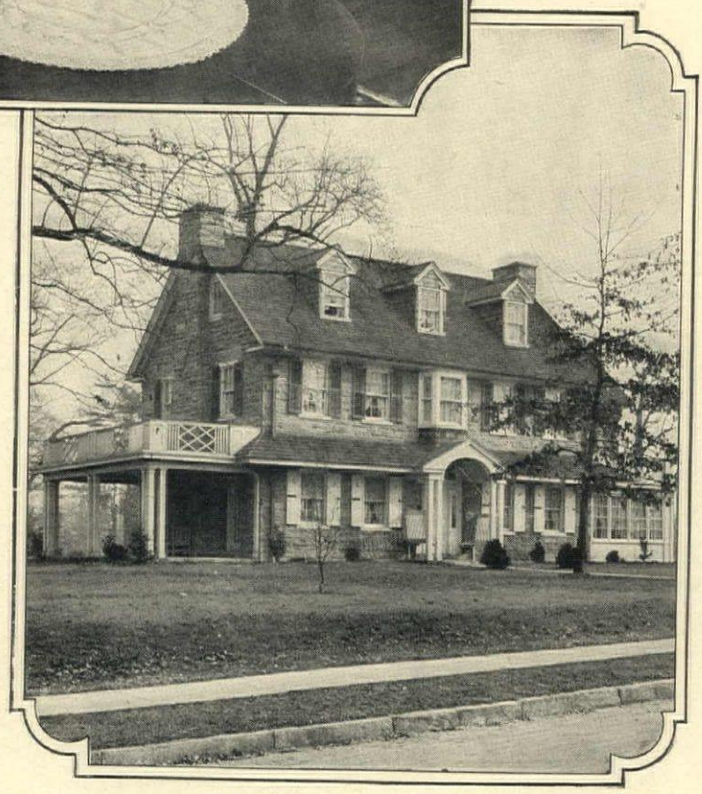
663. *Keeping Down the Cost of Your Woodwork.* A book illustrating Curtis interior woodwork and built-in cabinets and fixtures designed by Trowbridge and Ackerman, Architects, New York. Colored illustrations and details. 16 pp. Ill. 7 x 9¼ in.

Hartmann-Sanders Company, 6 East 39th St., New York, N. Y.

334. *Catalog No. 47.* Illustrating Kell's Patent Lock Joint wood stave columns for exterior and interior use. 48 pp. Ill. 7½ x 10 in.

CURTIS WOODWORK





Seven Good Reasons
Why Architects are Specifying Curtis Woodwork

The photograph at the right shows the home of Leighton P. Stradley, designed by Architect Albert F. Schenck of Philadelphia and recently completed in that city.

Seven Curtis numbers were used in this home, these being:

Exterior	Interior
Windows, C-1024	*French Doors, C-321*
Shutters, C-1165 and C-1166	*China Closet, C-700*
Entrance, C-101	*Trim, C-1640*
	Mantel, C-617

It is worthy of note that an overwhelming majority of those architects who earnestly and thoroughly investigate the advantages afforded by the Curtis line are specifying Curtis Woodwork wherever possible.

We are glad to furnish, free, complete details of Curtis Woodwork to architects maintaining offices in our sales territories.

The Curtis Companies Service Bureau, 142 Curtis Bldg., Clinton, Iowa

Curtis Companies, Inc., Clinton, Iowa

Curtis Bros. & Co., Clinton, Iowa
Curtis & Yale Co., Wausau, Wisconsin
Curtis Sash & Door Co., Sioux City, Iowa
Curtis, Towle & Paine Co., Lincoln, Neb.
Curtis, Towle & Paine Co., Topeka, Kans.
Curtis-Yale-Holland Co., Minneapolis, Minn.
Curtis Door & Sash Co., Chicago, Illinois
Curtis Detroit Co., Detroit, Michigan

Sales offices in: **Pittsburgh - New York - Baltimore**

Curtis Woodwork is sold by retail lumbermen east of the Rockies. Make sure the woodwork you buy bears this trade mark—

1866 CURTIS

The makers of Curtis Woodwork are proud to identify their products by this mark.

From a Painting By Norman Rockwell

"61" FLOOR VARNISH

THE faith of childhood is no greater than the confidence of those who specify "61" Floor Varnish. Because that confidence has never been abused, architects know that "61" Floor Varnish is just as wear-resistant as it is water-resistant. They know that it is economical because it spreads far and leaves a thick, lasting film. They know that the owner will be pleased, because its depth and richness proclaim its superiority.

The Pratt & Lambert Architectural Service Department is at your service. Let us help you with your wood-finishing problems.

PRATT & LAMBERT-INC. 98 Tonawanda St., Buffalo, N. Y.
In Canada: 8 Courtwright Street, Bridgeburg, Ontario.

"Save the surface and you save all" (Pratt & Lambert)

PRATT & LAMBERT VARNISH PRODUCTS

"Save the surface and you save all" (Pratt & Lambert)

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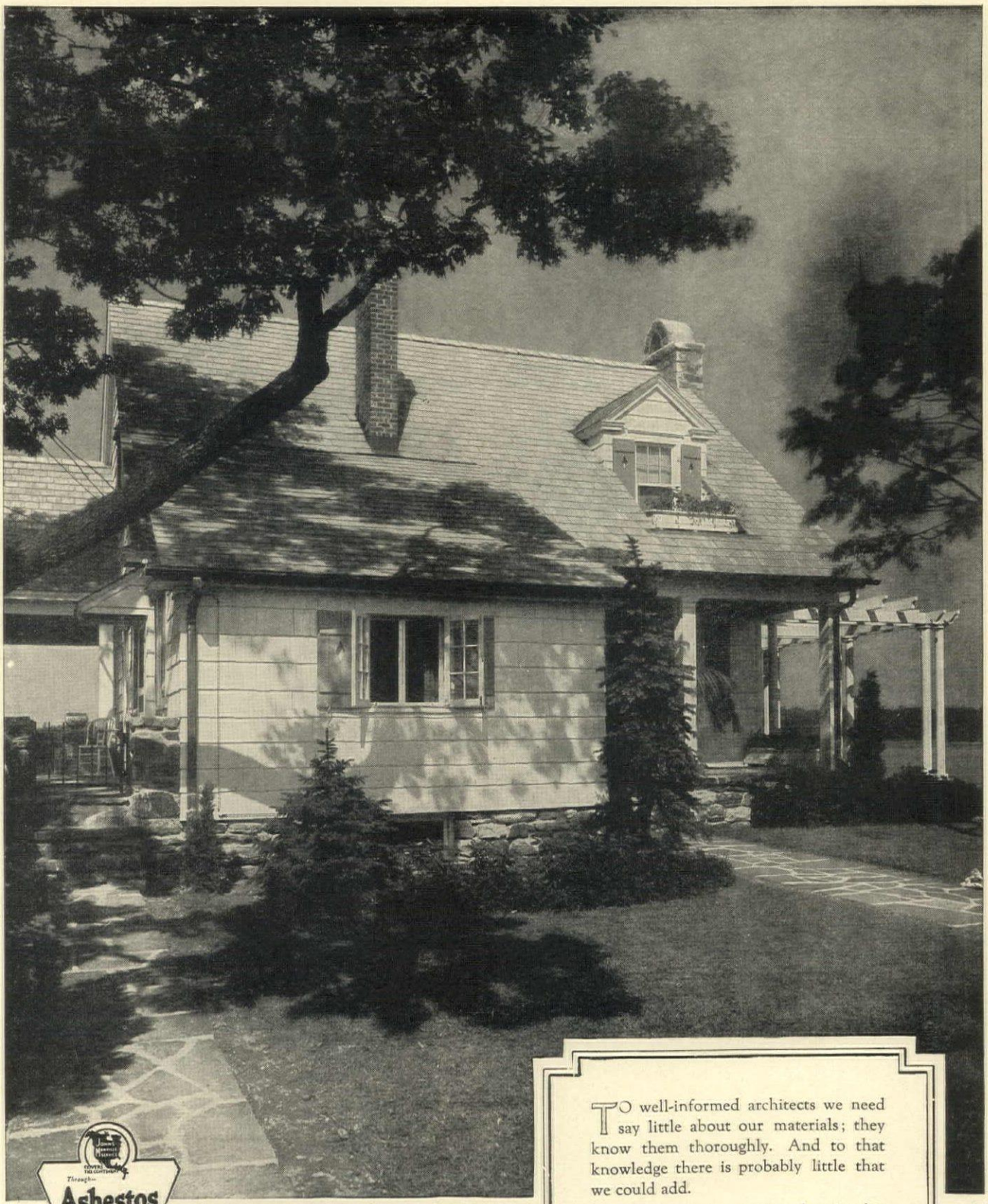

Through Asbestos and its allied products
INSULATION
BRAKE LININGS
ROOFINGS
PACKINGS
CEMENTS
FIRE PREVENTION PRODUCTS

Johns-Manville Colorblende Asbestos Shingles
Residence of Henry F. Keil, Rye, N. Y.
Architect, Henri Vallet

TO well-informed architects we need say little about our materials; they know them thoroughly. And to that knowledge there is probably little that we could add.

As to our service we can only print this promise: That Johns-Manville will always endeavor to render service that shall be completely satisfactory to architect and owner.

JOHNS-MANVILLE, Inc.
294 Madison Ave., at 41st St., New York City
Branches in 61 Large Cities
For Canada:
Canadian Johns-Manville Co., Ltd., Toronto

JOHNS-MANVILLE
Asbestos Roofing

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

"U. S." TILE FLOORING

Trade Mark

Hardihood

"U. S." Tile is truly a Hercules among floor coverings. Its sturdy body of virgin rubber, scientifically compounded, is reinforced with a sinewy network of selected fibres, each of which adds its individual strength to this finished masterpiece of the floor-maker's art.

May we not send you samples and fuller information?

United States Rubber Company

1790 Broadway, New York City

Manufacturers of Rubber Flooring since 1897

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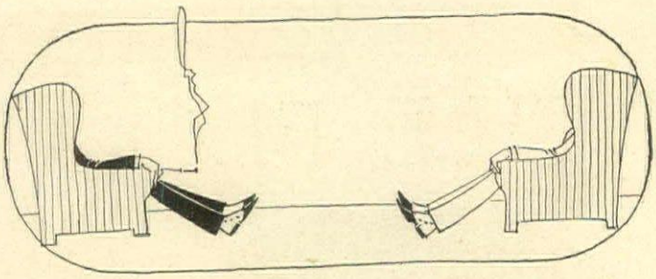


"—continually groping and searching for one material—"

"I RAN into Ten Broeck today."

"Oh, is *he* back?"

"Yes, came in on the Celtic. Most interesting fellow. Told me all about his restoration work on Villa Benvenuto for the Conte Venturi. He said working on an old Florentine place like that set him thinking about this whole job of planning houses.

"'Interesting', he said, 'to look back and see how, at first, they used one material throughout. Mud-bricks in Sargon's day. Stone with the Greeks. Then how they began to specialize and adapt certain materials for certain uses. The Romans used a reinforced concrete for arches. The English thatched their roofs and the early Americans shingled them.'"

"You mean we always tend toward extreme specialization."

"Exactly. He says the world is continually groping and searching for one material that will do one job better than anything else.

"'Take varnish,' he said, 'Not so long ago, varnish was varnish. If you wanted something varnished, you just varnished it. Today we have specialized varnishes. We have learned that floor varnish won't do for a rubbed finish on interior woodwork, nor is a rubbing and polishing varnish suitable for front doors.'"

"'One company,' he ended up, 'has worked this varnish specialization out to the final nicety.'

"We ought to look into it. Here is his notation:"

1. ELASTICA FLOOR FINISH
   The one perfect varnish for floors.
2. ELASTICA INTERIOR VARNISH
   For interior woodwork (standing trim) gloss or rubbed finish.
3. ELASTICA EXTERIOR VARNISH
   For front doors and exposed woodwork.
4. ELASTICA POLISHING VARNISH
   For rubbed or polished finish on interior woodwork.
5. ELASTICA FLAT VARNISH
   For producing a rubbed effect on interior woodwork without the addition cost of hand-rubbing.
6. ELASTICA SEAT VARNISH
   For church pews, chairs, etc.

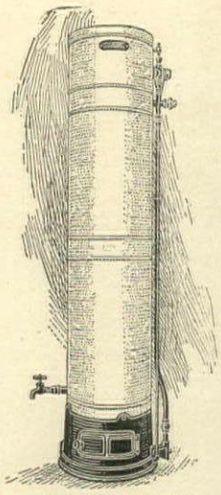
STANDARD VARNISH WORKS, New York, San Francisco, London, Paris, Gothenberg

Chicago STANDARD VARNISH CO. *of Illinois*, Licensee and Western Manufacturer

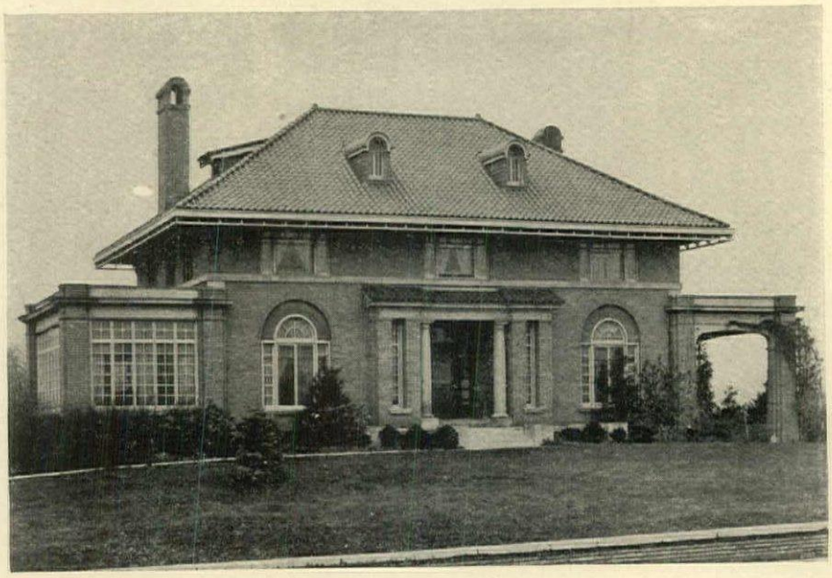
MANUFACTURERS OF THE FOLLOWING WORLD-ACCEPTED STANDARDS

Koverflor, the liquid floor covering. Satinette, the china-like Enamel.
The Elastica Family of Varnish Specifics. Kleartone Oil and Acid Stains.

If you have not received a copy of our Architectural Reference Book, it will be a pleasure to send one to you. It contains finishing specifications, etc.

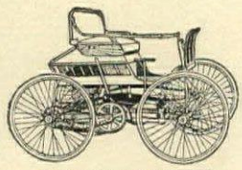


The Original RUUD America's First Automatic Water Heater 1889



R. L. Young, Architect.

The home of Elwood Haynes, inventor, designer, and builder of America's first successful automobile, Kokomo, Ind. A No. 30 Ruud Automatic Storage System is the source of an ever-ready, abundant hot water supply



THE ORIGINAL HAYNES
AMERICA'S FIRST CAR
1893

Two Pioneers—Two Leaders

Elwood Haynes, "The Father of the Automobile Industry."

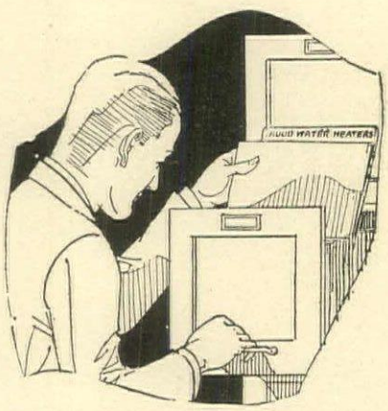
Edwin Ruud, "The Father of the Automatic Water Heater Industry."

Thirty years ago Elwood Haynes invented and built America's first mechanically successful gasoline Automobile.

Thirty-four years ago, Edwin Ruud invented and constructed the world's first mechanically successful Automatic Gas Water Heater.

Here you find them together—a Rudd No. 30 Automatic Storage System installed in the Kokomo, Ind. home of Elwood Haynes.

First 34 years ago—First today. The leading Automatic Gas Water Heater—RUUD. Made in all types and sizes for buildings of every kind and description—wherever perfect hot water service is desired.

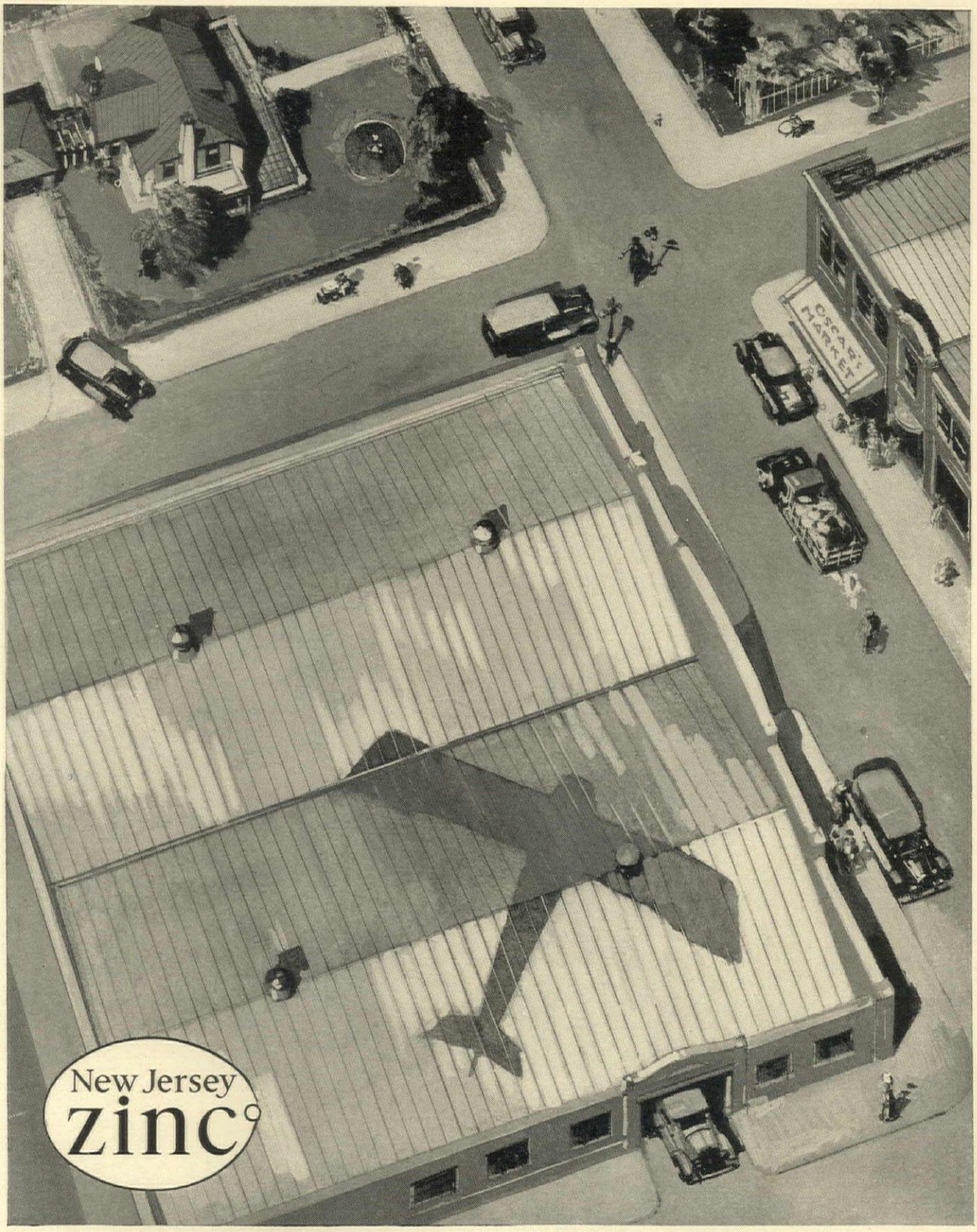


This is the Ruud Architect's Specification Folder. It fits your files as conveniently as its contents suits your plans.

RUUD MANUFACTURING COMPANY
PITTSBURGH, PENNA.
BRANCHES IN ALL LARGE CITIES

RUUD AUTOMATIC GAS WATER HEATERS

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual



A standing seam roof that is *permanent*

Standing Seam roofs are easily laid and are water-tight.

Now you can add to these characteristics the weather and time resistant, rust proof qualities of Zinc. Standing Seam roofing is now supplied in Horse Head *Rolled* Zinc.

Standing Seam Horse Head Zinc Roofing is shipped in casks, complete with clips, nails and full instructions. Each cask contains sufficient to cover one square.

Horse Head Zinc Roofs endure. They do not rust. They need no protective coatings.

Send for Bulletin A-2.

The New Jersey Zinc Company

Established 1848

160 Front Street, New York City

CHICAGO · PITTSBURGH · SAN FRANCISCO · CLEVELAND

Mineral Point Zinc Company · The New Jersey Zinc Sales Co.

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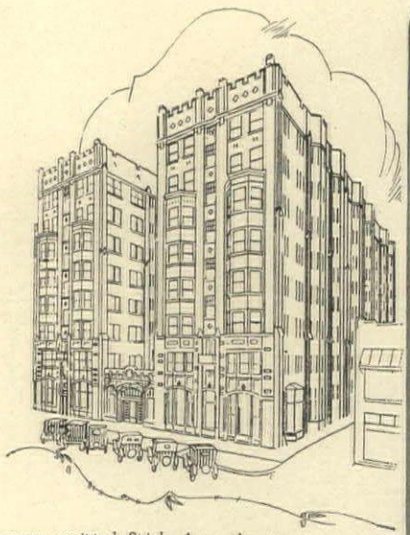
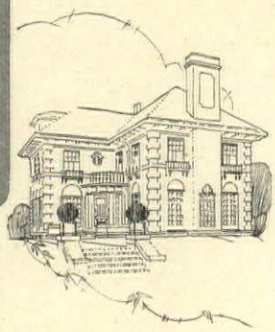


Kernerator-equipped Spink Arms Apartment and Annex, Indianapolis. E. G. Spink Co., Builders. W. K. Eldridge, Architect, Indianapolis.

Drop all waste here— then FORGET IT!



Kernerator-equipped residence of Mr. A. P. Kunzelmann, 625 Third Ave., Milwaukee. Herbst & Hufschmidt, Architects, Milwaukee.

Reducing Apartment-Tenant Turnover

HOW often an owner's mistaken sense of economy leads him to think of eliminating the very conveniences that help most to insure the highest return on his investment! The Kernerator is a convenience, which, though adding but little to the total building cost, is a proven winner of quick renters and a tremendous influence in holding them.

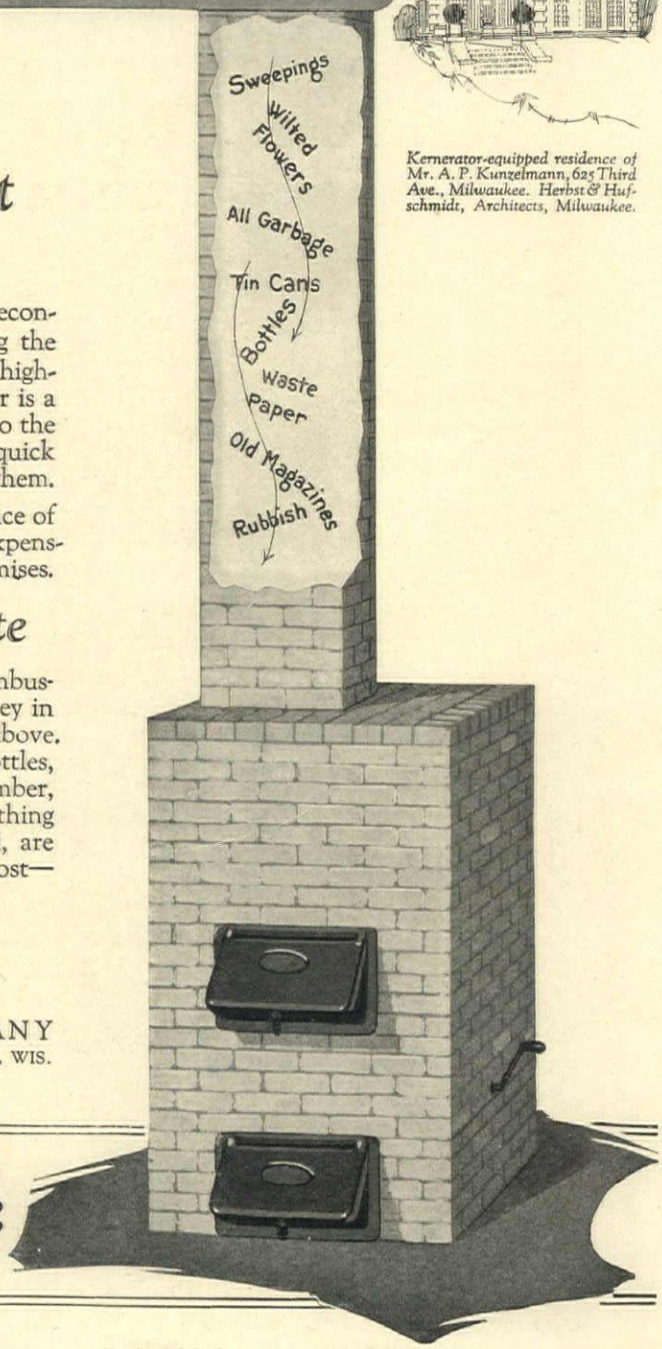
For the Kernerator banishes forever the nuisance of garbage can and rubbish pile, besides reducing expenses of janitor service and assuring more tidy premises.

Costs Nothing to Operate

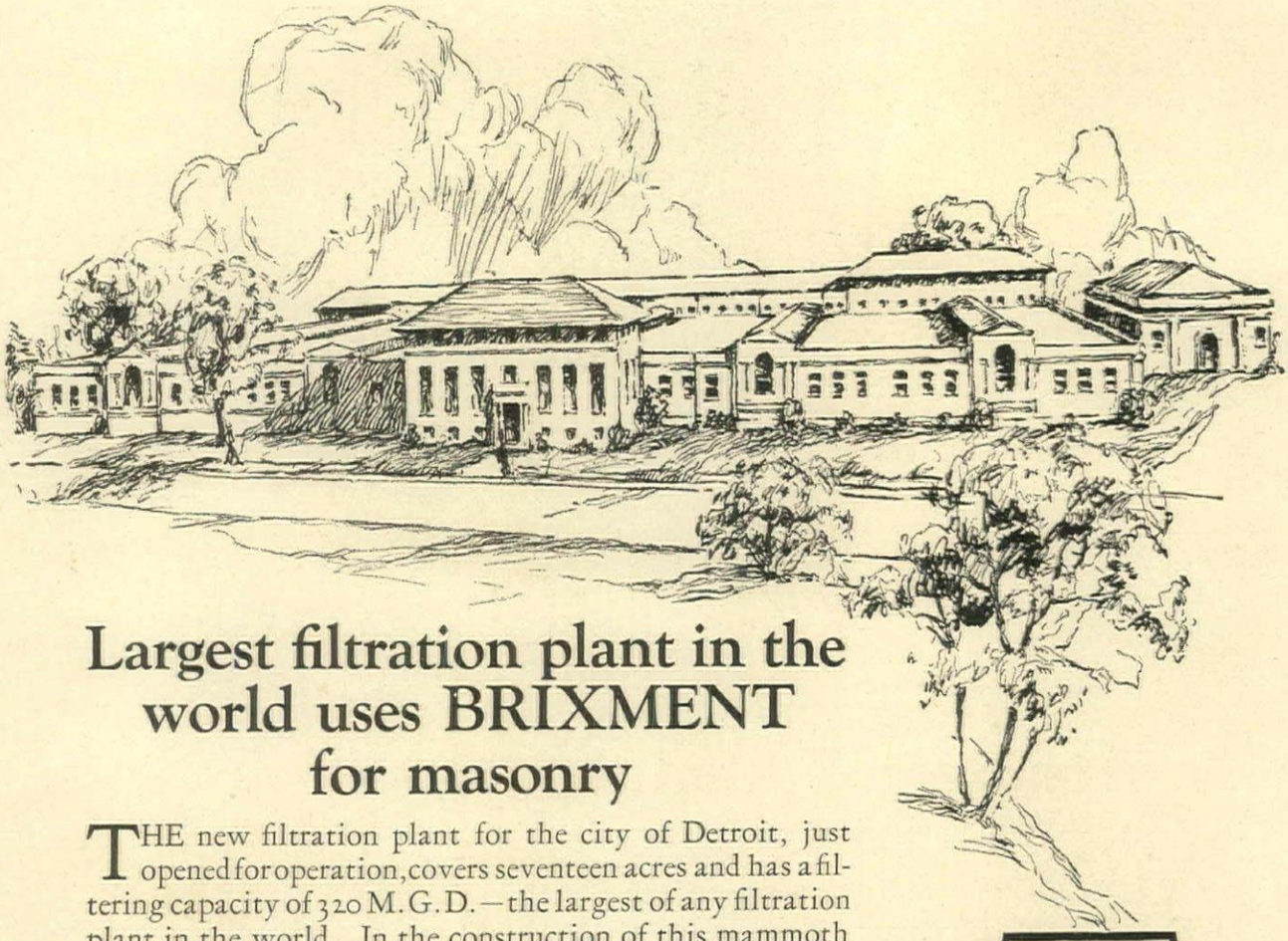
The KERNERATOR consists of a brick combustion chamber, built at the base of the chimney in the basement, with hopper doors on the floors above. *All* waste—garbage, sweepings, tin cans, bottles, papers, rubbish—falls to the combustion chamber, where an occasional lighting consumes everything burnable. Non-combustibles, flame-sterilized, are removed with the ashes. There is no up-keep cost—***the waste itself is all the fuel required.***

Full details and specifications appear on pages 2340-41, Sweets (1923). Additional information, such as references of installations near you, gladly sent.

KERNER INCINERATOR COMPANY
1019 CHESTNUT STREET MILWAUKEE, WIS.



KERNERATOR
Built-in-the-Chimney
Reg. U. S. Patent Office



Largest filtration plant in the world uses BRIXMENT for masonry

THE new filtration plant for the city of Detroit, just opened for operation, covers seventeen acres and has a filtering capacity of 320 M. G. D.—the largest of any filtration plant in the world. In the construction of this mammoth plant, strength and endurance were prime requisites. Quite naturally, therefore, BRIXMENT was chosen for all masonry.

For BRIXMENT is not only more easily adapted to architectural requirements—not only more economical in time, labor and money—but also insures a wall of greater strength and stability. BRIXMENT is a mortar material of standardized composition, resulting in an invariable and uniform mix and a bond equal in ultimate strength to that of the brick itself. No lime. No slaking. Unusually plastic, enabling the mason to do more and better work. Obviously more economical.

Send for convenient, self-filing handbook and list of well-known buildings in which BRIXMENT has been used exclusively for mortar.

LOUISVILLE CEMENT COMPANY, *Incorporated*, LOUISVILLE, KY.

Detroit Filtration Plant, Detroit, Mich. Theodore A. Leisen, Chief Engineer; Frank A. Stevenson, Principal Assistant; Henry A. Hagen, Assistant; W. H. Mueller Co., Contractors for superstructure. BRIXMENT used exclusively for mortar.

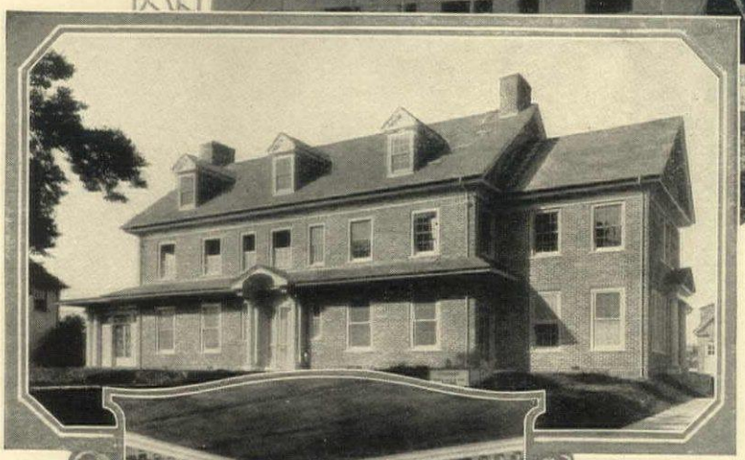
Better Masonry at Less Cost

BRIXMENT

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

In this residence of T. W. Griffiths, Dallas, Texas, the architect, Anton F. Korn, Jr., Dallas, used 20,000 feet of Celotex as sheathing, plaster base and floor sound deadener.

Griffiths' residence under construction showing Celotex applied directly to the studs in place of wood sheathing.



The more they know about it the more Celotex they use

All over the country—yes in foreign lands, too—architects are specifying Celotex for more and more uses in ever increasing volume.

On exterior walls it is insulation—equal to cork; it is sheathing—stronger than wood; it is weatherproofing without equal.

On roofs it is insulation and prevents condensation of moisture.

In floors, it insulates, and deadens sound.

In partitions, Celotex retards the passage of sound, insulates, provides a perfect plaster base.

The use of 20,000 feet in this one residence illustrates the possibilities of Celotex but still does not realize them to the fullest.

Let us put architect's sample and specifications in your hands. Write, please, on your letterhead to Dept P-2 The Celotex Company, 645 North Michigan Avenue, Chicago, Illinois. Canadian Representatives: B. & S. H. Thompson & Co., Ltd., Montreal and Toronto.

Celotex is a rugged, strong, weatherproof, durable building lumber made from the long, tough fibers of cane. It is better than wood sheathing—equals cork for insulation.

Celotex is used for sheathing instead of wood; for plaster base, roof insulation, sound deadener and exterior finish.

Stock sizes: Thickness 7/16 in.; width 4 ft.; lengths, 8 ft., 8½ ft., 9 ft., 9½ ft., 10 ft., and 12 ft. Weight about 60 lbs. per 100 sq. ft.

CELOTEX

INSULATING LUMBER

THERE IS A USE FOR CELOTEX IN EVERY BUILDING

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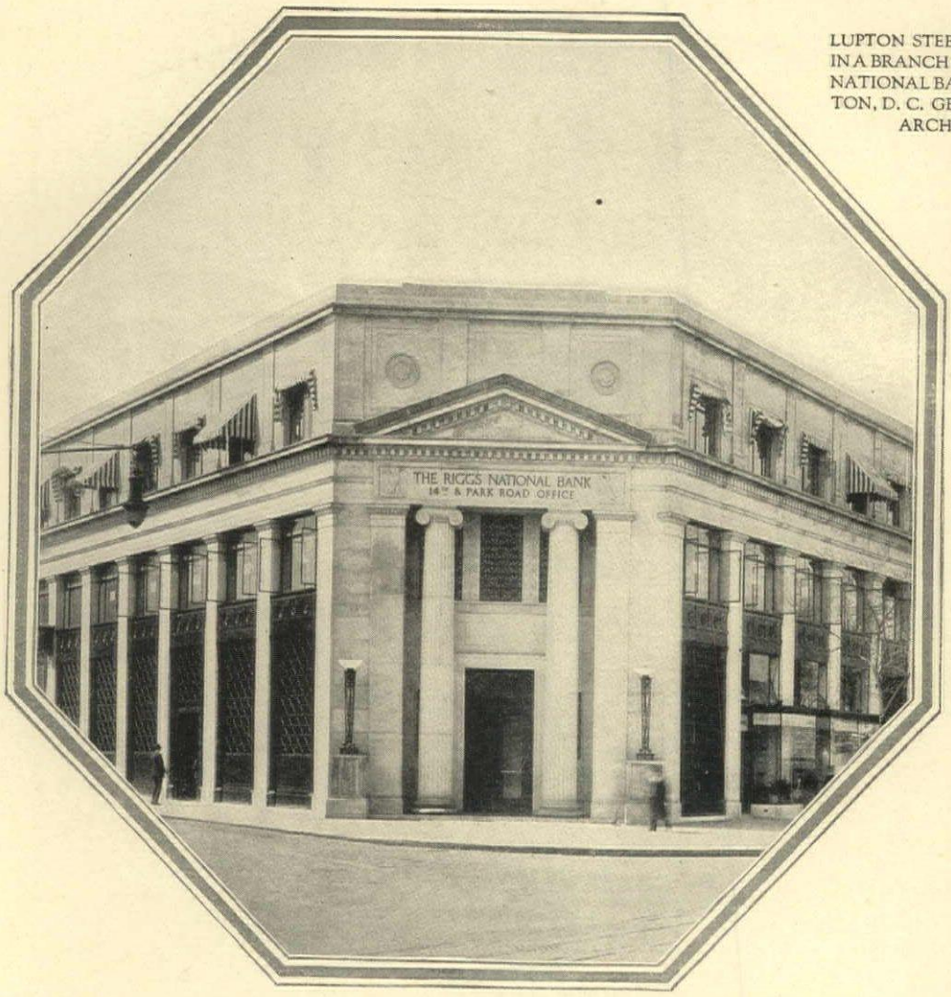

LUPTON STEEL CASEMENTS IN A BRANCH OF THE RIGGS NATIONAL BANK, WASHINGTON, D. C. GEORGE N. RAY, ARCHITECT.

LUPTON

Steel Casements

The age of wood was the stage coach age. We are now in the steel age; we know more. Wood, by reason of its cellular structure, is constantly changing, while steel is compact, homogeneous and invariable. You can readily see why Lupton Casements made of unchangeable copper-steel are so far superior to wood. They are the same in all weathers, are made to fit closely, and that fit is permanent.

DAVID LUPTON'S SONS COMPANY

Founded 1871

2201 E. Allegheny Ave., PHILADELPHIA

ATLANTA BALTIMORE BIRMINGHAM BOSTON BUFFALO CHICAGO CLEVELAND DALLAS DETROIT NEW YORK PITTSBURGH ST. LOUIS

Steel windows for homes, factories

LUPTON · STEEL · WINDOWS

Banks, office buildings and apartments

"EVERYWHERE"

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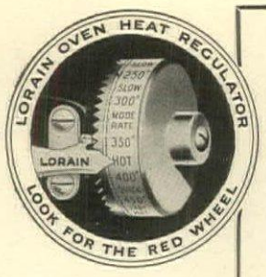
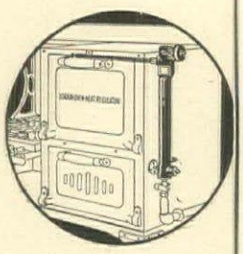


One easy turn of the Lorain Red Wheel gives the housewife a choice of 44 measured and controlled oven heats for any kind of oven cooking or baking



View showing application of the Lorain Oven Heat Regulator to the gas range oven.

A. PERMUT
General Contractor and Builder
11405 Saywell Avenue
Cleveland, Ohio

January 3, 1924

New Process Stove Co. Div.,
American Stove Co.,
Cleveland, Ohio.

Gentlemen:—

Recently I gave you an order for 15 gas ranges for the Biltmore Apartments. I intended to purchase these ranges without Lorain Oven Heat Regulators. Your salesman, however, explained the advantages of Lorain, and I decided to install Lorain-equipped stoves.

I was somewhat skeptical about this, but since they have been installed I can safely say I have made no mistake. The first suite rented was to a woman who had just about decided to take a suite elsewhere at $100.00 per month. She, however, rented one of my suites at $130.00 per month, mostly due to the fact that these suites are furnished with New Process Gas Ranges with Lorain Regulators.

Later on my agent came in with two people looking for a suite. He called their attention to the ranges with the Lorain. The woman then remarked that this in itself was worth renting the place for.

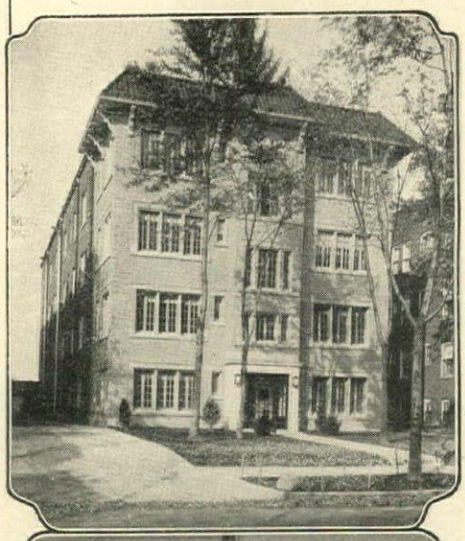
Eleven of the suites are now rented, and all tenants are pleased with the stoves. I hear nothing but compliments from all of them. I have been using your ranges for a good many years in my different apartments, and I recommend that owners of apartments furnish same with Lorain-equipped Gas Ranges.

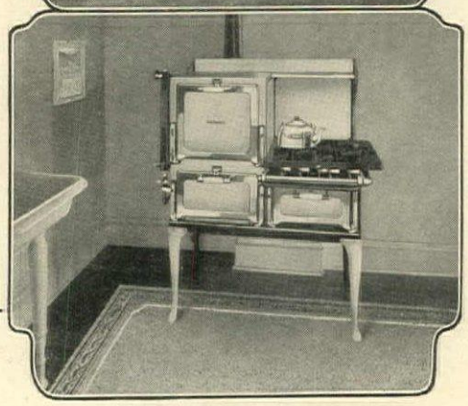
Thanking you for past favors, I am,

Yours very truly,

(Signed) A. PERMUT.

The Biltmore Apartments, Overlook Road, Cleveland, Ohio. A. Permut, Owner, Cleveland. A. F. Janowitz, Architect, Cleveland. Kitchens throughout equipped with New Process Gas Ranges with Lorain Oven Heat Regulators.





Representative kitchen of Biltmore Apartments, showing type of New Process Lorain-equipped Gas Ranges in use.

Homes with Lorain-equipped Gas Ranges Rent More Quickly

WHAT makes some homes rent more quickly than others? The ones that rent *first* usually have the best of modern equipment.

One of the many examples of this fact is shown on this page. Read the letter of Mr. Permut above.

When the average housewife seeks a place in which to live, and finds a Lorain-equipped Gas Range stove as part of the equipment she immediately becomes most interested. She knows that this is the wonderful labor-saving stove with Lorain Oven Heat Regulator, the famous device that automatically controls the oven heat at any desired cooking temperature, thereby making possible many unusual cooking feats.

Thousands upon thousands of fine homes, apartments, churches, hospitals and other types of high-grade buildings have kitchens furnished with Lorain. These famous stoves are used for cookery instruction purposes in over 900 of the leading schools and universities of America.

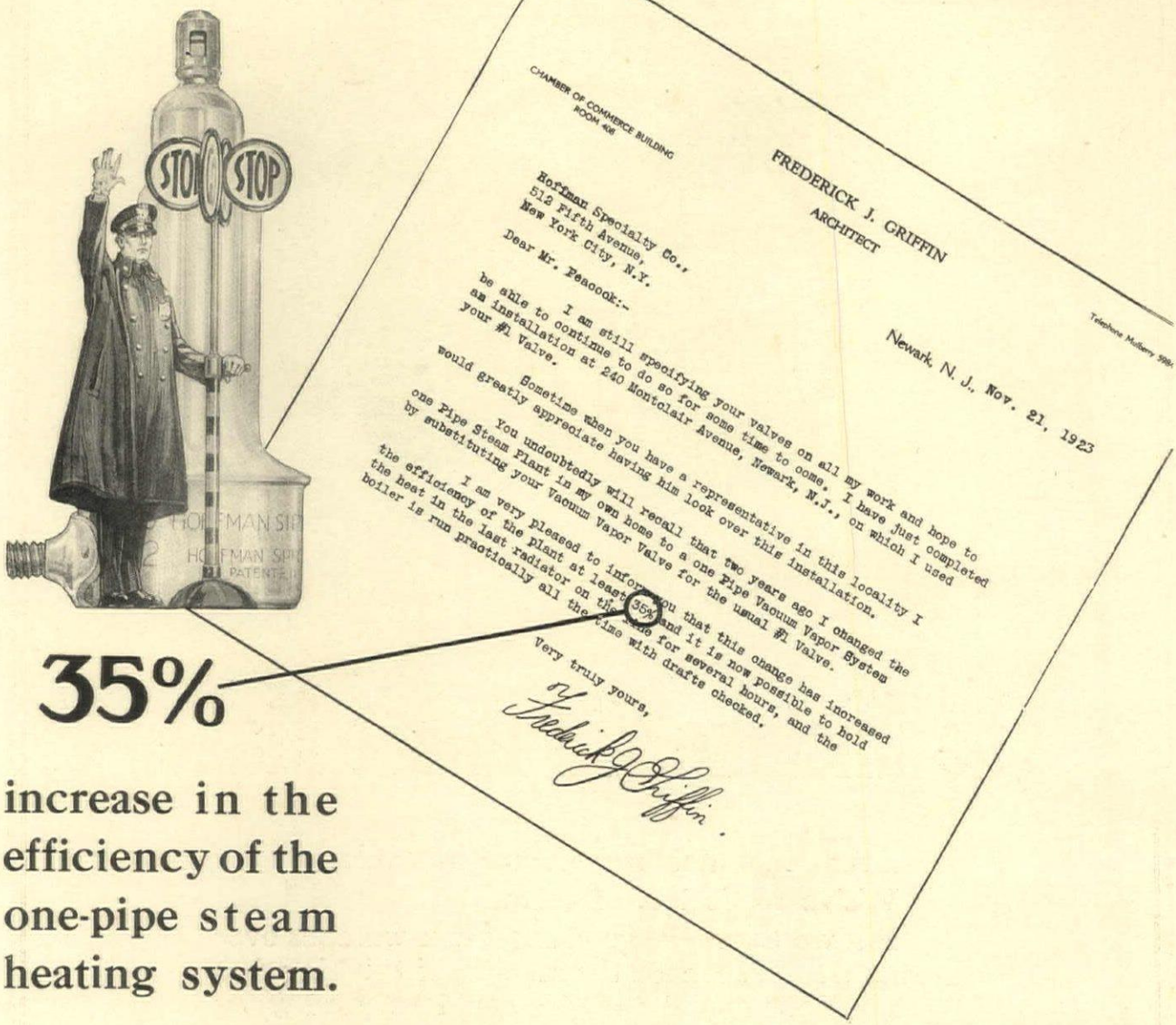
If you want homes or suites to rent more quickly, see that Lorain-equipped Gas Ranges are installed. For specific data, see pages 2315-2324 inclusive, 18th Edition, Sweet's Architectural Catalog. Catalogs, prices etc. gladly furnished on request.

These famous gas stoves are equipped with the Lorain Oven Heat Regulator: Dangler, Direct Action, New Process, Quick Meal, Reliable and Clark Jewel.

AMERICAN STOVE COMPANY, 333 Chouteau Ave., St. Louis, Mo.
Largest Makers of Gas Ranges in the World

LORAIN OVEN HEAT REGULATOR

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual



CHAMBER OF COMMERCE BUILDING
ROOM 406

FREDERICK J. GRIFFIN
ARCHITECT

Telephone Mulberry 5986

Newark, N. J., Nov. 21, 1923

Hoffman Specialty Co.,
512 Fifth Avenue,
New York City, N.Y.

Dear Mr. Peacock:-

I am still specifying your valves on all my work and hope to be able to continue to do so for some time to come. I have just completed an installation at 240 Montclair Avenue, Newark, N.J., on which I used your #1 Valve.

Sometime when you have a representative in this locality I would greatly appreciate having him look over this installation.

You undoubtedly will recall that two years ago I changed the one Pipe Steam Plant in my own home to a one Pipe Vacuum Vapor System by substituting your Vacuum Vapor Valve for the usual #1 Valve.

I am very pleased to inform you that this change has increased the efficiency of the plant at least 35% and it is now possible to hold the heat in the last radiator on the line for several hours, and the boiler is run practically all the time with drafts checked.

Very truly yours,

Frederick J. Griffin.

35%

increase in the efficiency of the one-pipe steam heating system.

THE No. 2 Hoffman Air and Vacuum Valves not only vent air from radiators as freely as the celebrated No. 1 Hoffman, but automatically prevent air from returning through the port where it was expelled.

The complete installation of these valves on a one-pipe steam heating system will therefore produce the advantages of vapor vacuum heat with no additional equipment or changes in the piping.

These No. 2 Hoffman Air and Vacuum Valves create both the varying radiator temperature of hot water and the flexibility of steam.

HOFFMAN SPECIALTY COMPANY, INC.
Dept. 6-1, 512 Fifth Avenue, New York City
Branches: CHICAGO LOS ANGELES

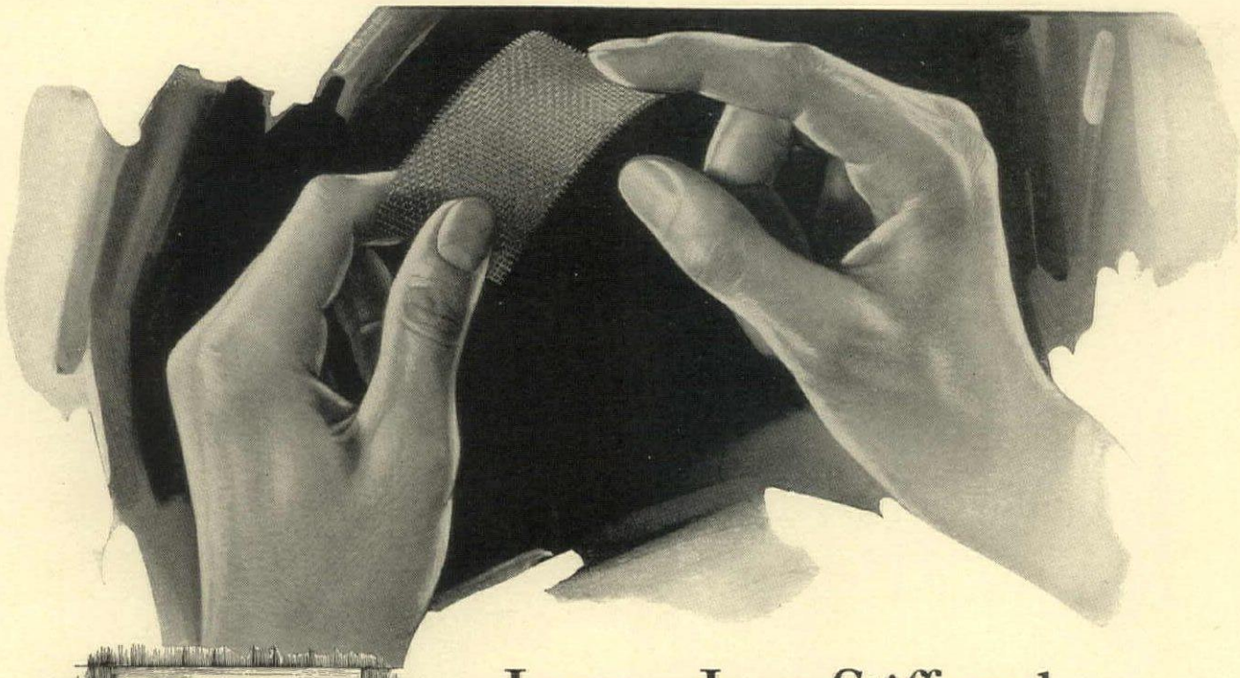
Main Office and Factory, Waterbury, Conn.

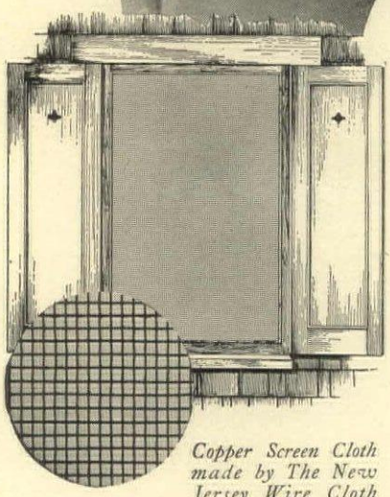
In Canada: CRANE, Limited, branches in principal cities

HOFFMAN VALVES

more heat from less coal

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual





Copper Screen Cloth made by The New Jersey Wire Cloth Company which has been subjected to the action of salt air for more than twelve years.

Jersey Is a *Stiff* and *Strong* Copper Cloth

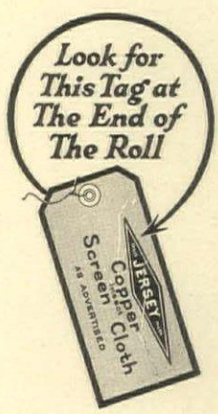
Jersey Copper Screen Cloth although made of pure copper is unusually stiff and strong. It is due to this fact that architects, who formerly would not use insect screen cloth of pure copper, specify Jersey without hesitation.

There is a difference between *Jersey* Copper Screen Cloth and merely copper screen cloth. The New Jersey Wire Cloth Company has absolutely overcome the softness which is remarked in ordinary copper screen cloth. The wire of which Jersey Copper Cloth is made is copper 99.8% pure, treated by a special Roebling process which gives it stiffness and tensile strength comparable to that of steel.

You have only to test a sample, which we will gladly send you on request, to be immediately aware of its unusual resiliency. You may bend it back and forth, submit it to any test to which any screen cloth is put in ordinary wear. You will find that it holds its shape. It will not bulge or stretch.

Thus, in Jersey Copper Screen Cloth you will discover a screen cloth which has all the extraordinary durability of copper, so much desired by architects, combined with the stiffness and strength which copper cloths have lacked hitherto.

Let us send you samples, so that you may see for yourself. No annoying sales efforts will follow.



THE NEW JERSEY WIRE CLOTH COMPANY
614 South Broad Street
Trenton New Jersey

TRADE JERSEY MARK

Copper Screen Cloth

Made of Copper 99.8% Pure

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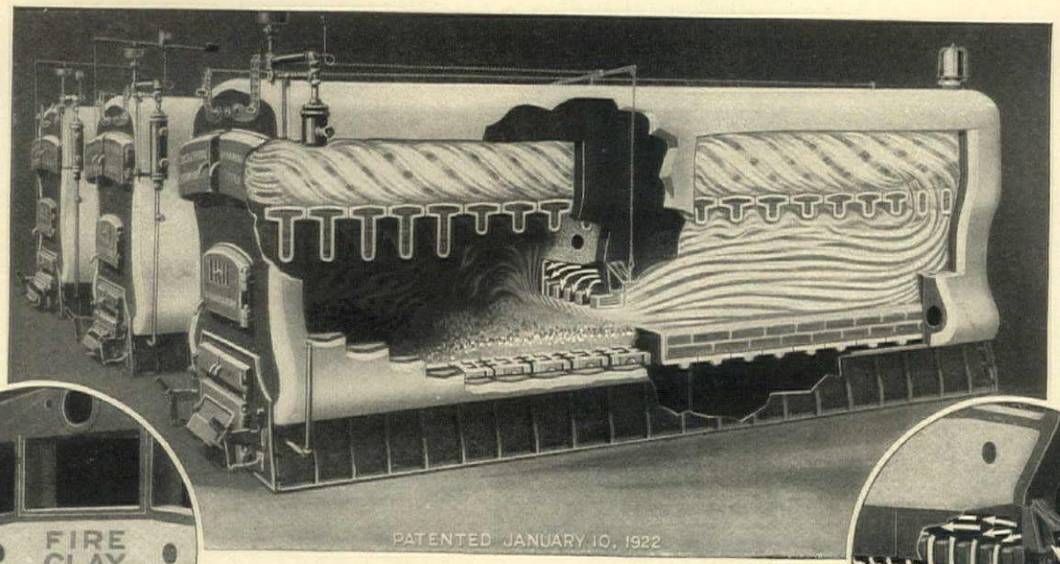
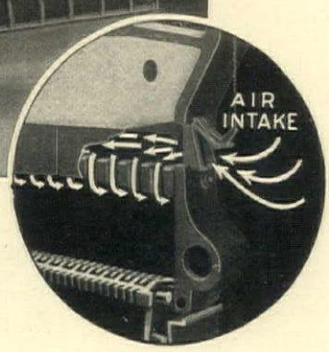
Heat All Large Buildings Smokelessly with SUPER-SMOKELESS BOILERS





CONSTRUCTION: Cast iron throughout, more durable than steel. Sections easily handled and installed. Single grate permits unskilled operation. Patented baffle wall supplies highly heated air to combustible gases—it is faced with plastic fire brick, air entering between water-jacketed openings. Smoke and soot are converted into exceptionally hot, clean flames of great heating capacity.

UTICA-IMPERIAL SUPER-SMOKELESS Boilers are now heating thousands of important buildings. Foremost architects and leading heating men specify them with complete confidence in their smokeless operation with soft coal under all conditions.

You will find SUPER-SMOKELESS Boilers well worth investigating if interested in reliable, low cost heating of large buildings. They comply with the most rigid smoke ordinances, burn any grade of soft coal successfully, are using oil with splendid results, and can be operated with hard coal or coke.

The following literature describes and illustrates SUPER-SMOKELESS Boilers and hundreds of fine buildings in which they are installed. Numerous additional installations throughout the United States are also listed:

COMPLETE CATALOG of the SUPER-SMOKELESS Boiler containing all essential technical data and references to many typical installations. Separate sections of the catalog are also available in the form of Special Bulletins as listed below:

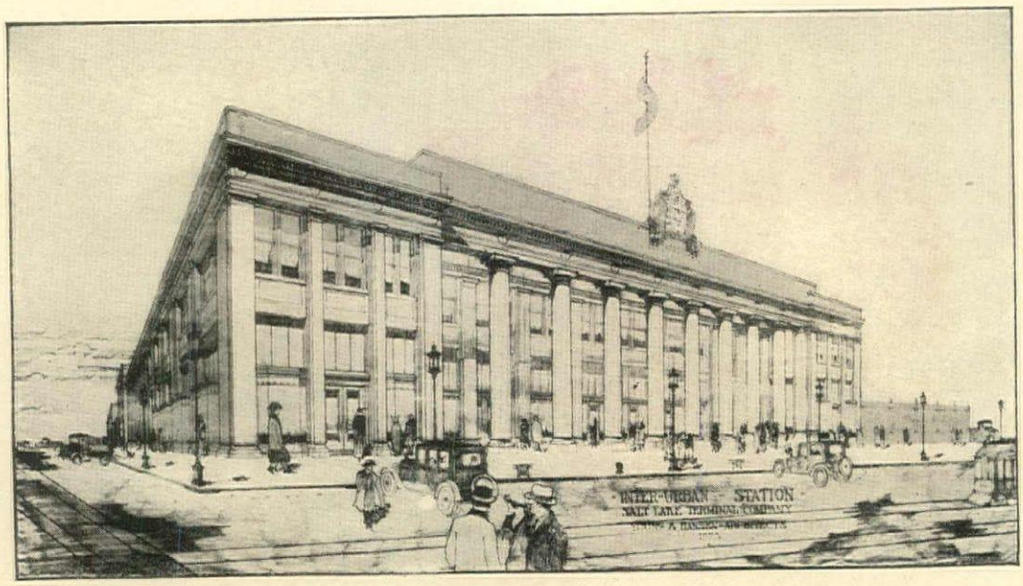
Technical Bulletin
School Heating Bulletin
Theater Heating Bulletin
Public Building Bulletin
Churches and Religious Institutions
Residences, Apartments and Hotels
Industrial and Office Buildings

The Timmins Report by one of the leading authorities on heating and ventilating is also available.

UTICA HEATER COMPANY, Utica, N. Y.

218-220 West Kinzie Street, CHICAGO, ILL. 707 Union Building, CLEVELAND, O. 1843 Grand Central Terminal, NEW YORK, N.Y.

Atlanta	Charlotte, N. C.	Dayton	Harrisburgh	Memphis	New York	Salt Lake City
Birmingham	Chicago	Denver	Houghton	Milwaukee	Omaha	San Angelo
Boston	Cincinnati	Detroit	Indianapolis	Minneapolis	Philadelphia	Toledo
Buffalo	Cleveland	Fort Wayne	Kansas City	Nashville	Pittsburgh	Utica
Cedar Rapids	Columbus	Grand Rapids	Louisville	New Haven	St. Louis	Washington



The Interurban Terminal Building, Salt Lake City, Utah—Young & Hansen, Architects—Onliwon equipped.

ONLIWON—An Excellent Precedent

The architect may include Onliwon Towel and Toilet Paper service in his plans and specifications of buildings, from the smallest to the most elaborate and costly, with a feeling of perfect confidence.

For there is probably no form of building service, material or equipment which can show more convincing precedent than Onliwon.

Examples of Onliwon installation can be furnished in buildings of every conceivable type and cost in every section of the country.

The Onliwon Toilet Paper and Paper Towel Service Affords Five Unique Advantages

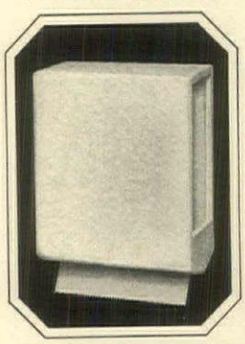
1 From both Onliwon toilet paper and paper towel cabinets, the paper is served in single units — two inter-folded sheets of toilet paper and just one double-folded paper towel at a time. This discourages the tendency to take more sheets than necessary and is an effective check on waste.

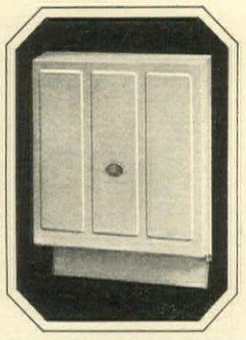
2 All Onliwon papers are made in our own mills from clean new spruce pulp and clear, tested well water. Towels are highly absorbent, contain no "sizing" to make them harsh and stiff and a single towel is sufficient to dry the face or hands. Onliwon toilet paper is strong and fine in texture, yet readily soluble in water and entirely eliminates clogged drains.

3 Onliwon cabinets are positively trouble-proof, sturdy in construction, and automatically indicate when to refill. Quickly refilled, they require less time and attention than roll fixtures. Cabinets may be had with lock and key to prevent theft of the paper or tampering, an economy that does away with littered, unsightly floors.

4 An important consideration in the choice of the Onliwon system is its 100% sanitation. The cabinets protect the paper from dust and the accumulation of germs and each sheet of paper taken is new and clean, never having been touched by human hands. Onliwon towel cabinets protect the unused towels from dripping hands.

5 Cabinets are furnished in a variety of styles and finish, to fit any requirement and to harmonize with any interior—in solid white porcelain, white enamel, nickel silver or gun-metal finish. In addition there is the solid white porcelain recess toilet paper cabinet, to fit flush with the tile wall. Below, at the left, is illustrated the Onliwon porcelain surface-type toilet paper fixture and at the right, the Onliwon nickel-silver surface-type towel cabinet.





Let Us Prove It—

A. P. W. Paper Co., Albany, N. Y.

Gentlemen: I am interested in a toilet paper and paper towel service that is at the same time the most economical and the most satisfactory. Please have your salesman call, without obligation to me.

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APW Quality Toilet Paper Products REG. IN U. S. PAT. OFF. B9

A.P.W. PAPER CO. ALBANY N.Y.

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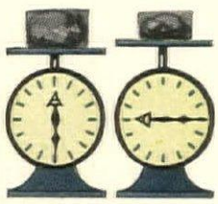
RICHARDSON *Product*

From the makers of Flex-a-tile Housetops, Viskalt Membrane Roofs, Viskote, and similar products



The Richardson Super-Giant Shingle built on a 50% thicker base of the famous Richardson felt, absorbs and holds 100% more actual waterproofing than does the ordinary shingle

100% more waterproofing in this exclusive shingle

Naturally, you want to give your clients a slate-surfaced shingle that will stand up unusually long under weathering. How long such a shingle will last depends largely, as you know, upon the actual waterproofing contained in its felt base.

In the Richardson Super-Giant Shingle, the felt base is 50% thicker than that of ordinary shingles. Made of the famous Richardson felt, it absorbs and holds 100% more actual waterproofing than does the ordinary shingle.

Furthermore, the waterproofing is in itself unusually durable. For it is Viskalt, vacuum-processed and 99.8% pure bitumen.

Such materials combine to give a super shingle in every detail. Its 50% greater thickness makes it last much longer and cast a deeper shadow line on the roof. Thus it is suitable for the more expensive homes as well as for those of moderate cost. And its 100% greater stiffness keeps it rigid and firm in all kinds of weather.

Beauty hitherto unknown

On this super shingle exclusively is used a color in slate hitherto unknown—a rich *weathered brown* found only in the Richardson quarries of Georgia.

It is as beautiful as the frosty tan of autumn fields, and it mellows richly with age. Architects are enthusiastic at the rare color effects made possible by the weathered brown, especially when it is blended with other Richardson Super-Giant Shingles of *jade green*, *tile red*, or *black pearl*.

Write for our new booklet

If you have not already discovered the *lastingly* beautiful effects made possible by the new weathered brown, write us. We will send you our beautiful new booklet *Roofs of Distinction* together with samples of Richardson Super-Giant Shingles in weathered brown and other colors. And, remember—for every roofing use there is a Richardson product.

The RICHARDSON COMPANY
Lockland (Cincinnati) Ohio
Chicago New Orleans New York City
Atlanta Dallas

RICHARDSON ROOFING

Clip and mail this coupon

The Richardson Company
Lockland, Ohio

Gentlemen:

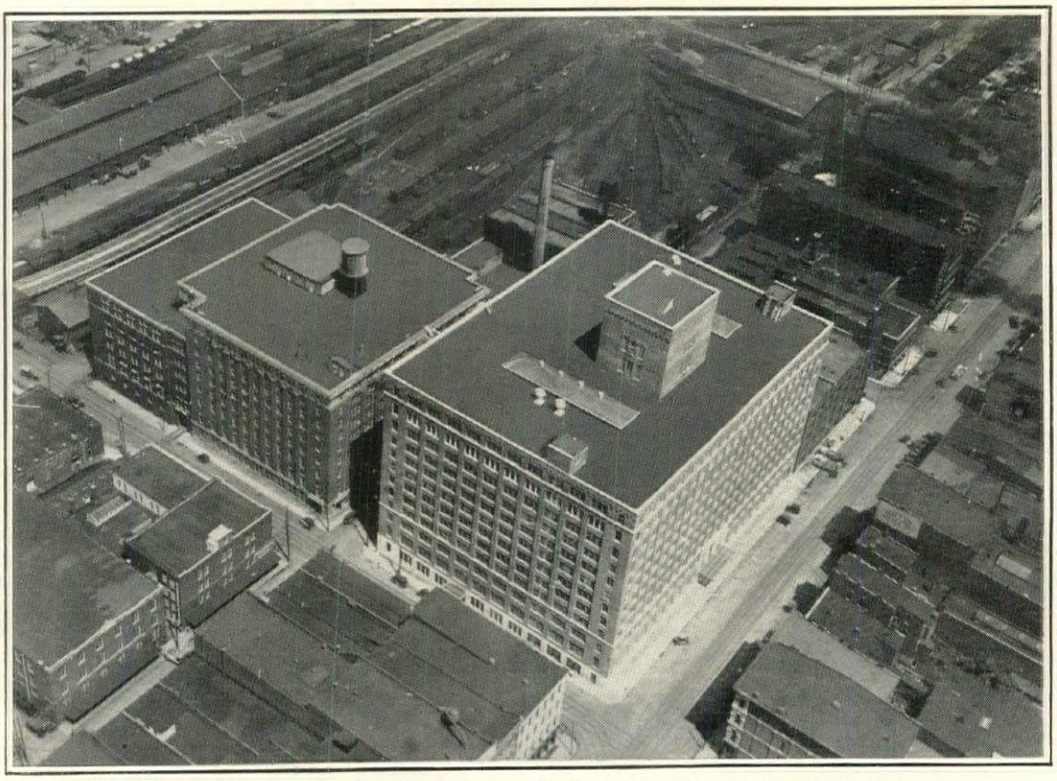
Please send me samples of Richardson Super-Giant Shingles, your new booklet and further facts about Richardson Roofing.

Name .....

Address .....

Viskalt Membrane Roof

Pliant Under Stress



The Belknap Hardware and Mfg. Co., Inc. Building, Louisville. Graham, Anderson, Probst and White, Architects, Chicago. Struck Construction Co., Louisville, Builders

—covers this new business block in Louisville

THE new home of the Belknap Hardware and Manufacturing Company, Inc., Louisville, Kentucky, is assured of permanent weather protection by a Viskalt Membrane Roof.

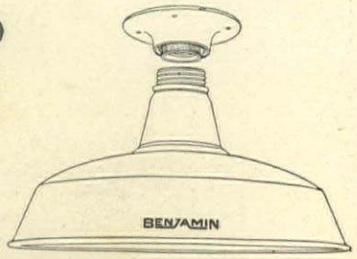
Each of the twelve floors of this new building covers an area of 55,000 square feet, making this one of the largest buildings devoted to the hardware industry in the United States.

That the architects, Graham, Anderson, Probst and White, of Chicago, and the officials of the Belknap Company, after thorough investigation, agreed on a Viskalt Membrane Roof for this building shows how generally Viskalt is recognized as the logical covering for business structures. Moderate cost of application plus years of endurance make it doubly economical and satisfactory.

Fifty-five years of manufacturing experience are back of the materials used in a Viskalt Membrane Roof. There is a Viskalt Compound for every waterproofing need. Architects, engineers, and owners may have complete specifications by applying to the Construction Materials Division, 1008 Fisk Building, New York City.

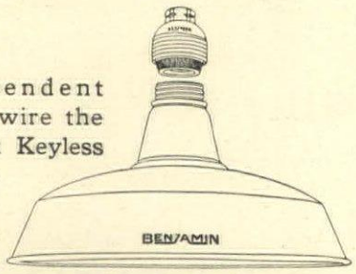
The RICHARDSON COMPANY
Lockland (Cincinnati), Ohio
Chicago New Orleans New York City Atlanta Dallas

RICHARDSON ROOFING

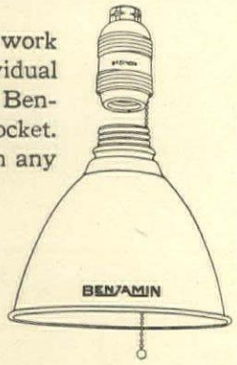


Just wire the Ben-ox Outlet Box fitting in place and get light. When you come to the reflector select the size and style and simply screw in place without disturbing the wiring.

If you wish individual control of the light, use a Ben-ox Pull Chain Socket and get light at once. Then, same as before, when you select the proper reflector, just screw it in place without disturbing the wiring.



For pendent work wire the Ben-ox Keyless Socket in place and get light. Then at any time screw the proper reflector in place without disturbing the wiring.



If with pendent work you want individual control use the Ben-ox Pull Chain Socket. Then, just like in any of the other places, you'll need a reflector. Select the style and size and screw in place.

Let us tell you the Complete Story of Ben-ox.

Wherever you go "Notice the Lighting Equipment."

BENJAMIN ELECTRIC MFG. CO.

847 W. Jackson Blvd., Chicago

247 W. 17th Street, New York — **580 Howard Street, San Francisco**

BEN-OX

Interchangeable Equipment for Industrial Lighting

Easily Wired

The Outlet Box Fitting or the Socket for pendent work, completes the wiring. Large terminal binding screws do away entirely with soldering and taping of joints.

The Ben-ox Thread

provides a sturdy threaded connection for Outlet Box Fitting or Socket and any Ben-ox Reflector, which may be attached at any time without disturbing the original wiring.

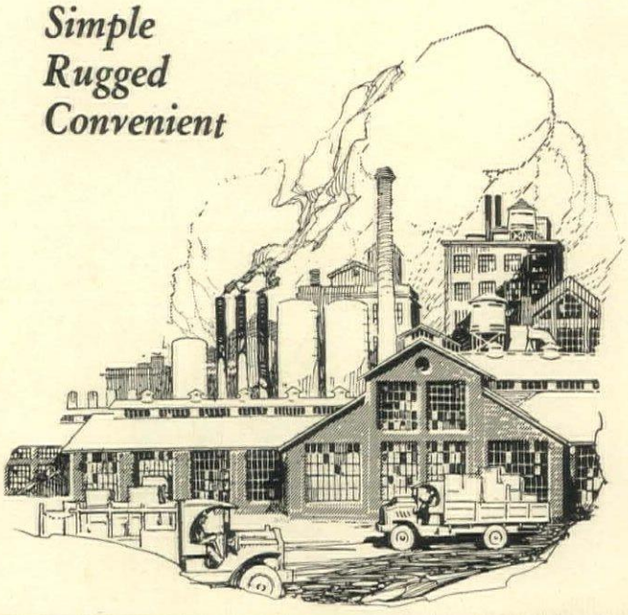
Reflectors Easily Removed

Where dirty locations make frequent and thorough cleaning desirable, it is the work of but a minute to unscrew the reflector or screw it back again.

Changes Easily Made

Changes in illumination requirements making necessary a different style or size of reflector may be made without disturbing the original wiring.

Simple
Rugged
Convenient



Sturdy Rigidity Not Found In Other Forms

The extraordinary rigidity and strength of Meyer Steelforms is obtained through the use of heavy 16 gauge steel. The stiffening ribs give them added strength, permitting workmen to move at will with heavy loads over the Steelforms. The cost of placing concrete and steel is lower. And you save the concrete usually lost through sagging or breakdown of forms. Absolute accuracy of concrete work, absolute safety of structural design can be depended upon.

The economy of this system extends through the job. Concrete and steel quantities are lower than with other methods. Formwork costs are minimized through maximum re-use from floor to floor. Architectural adaptability, speed of construction, dependable and skillful service in placing and removing Steelform equipment on the job are important features.

Meyer Steelforms give better results at lower cost. Investigate in detail for your next building.

CONCRETE ENGINEERING CO. *Omaha*

Chicago – Detroit – Omaha – Milwaukee – Kansas City – Des Moines – Dallas

Ceco PRODUCTS for Permanent Building

CONCRETE REINFORCING MATERIALS AND FORMWORK
FIREPROOF LATHING MATERIALS
METAL WEATHERSTRIPS

MEYER STEELFORMS

for lower formwork costs

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SARGENT
HARDWARE

HOTEL WINDERMERE EAST
Chicago, Ill.

C. W. & Geo. L. Rapp
Architects
Thompson-Starrett Co.
General Contractors

VIEW OF MAIN ENTRANCE AND WING

THE gathering of families into the multiple-residence buildings of our large cities has presented new problems in design and equipment.

SARGENT

LOCKS AND HARDWARE

which have been used in many hotels and apartment houses combine the convenience of operation and the maximum of protection with the artistic merit that is appreciated by people of taste.

SARGENT & COMPANY

NEW HAVEN, CONN.

New York, 94 Centre St.
Chicago, 221 W. Randolph St.

"Details to which Standard Hardware can be applied" are printed in our catalogue. We have additional copies of these pages, bound with a cover, that we shall be pleased to send to Architects and Architectural Draftsmen upon request.

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

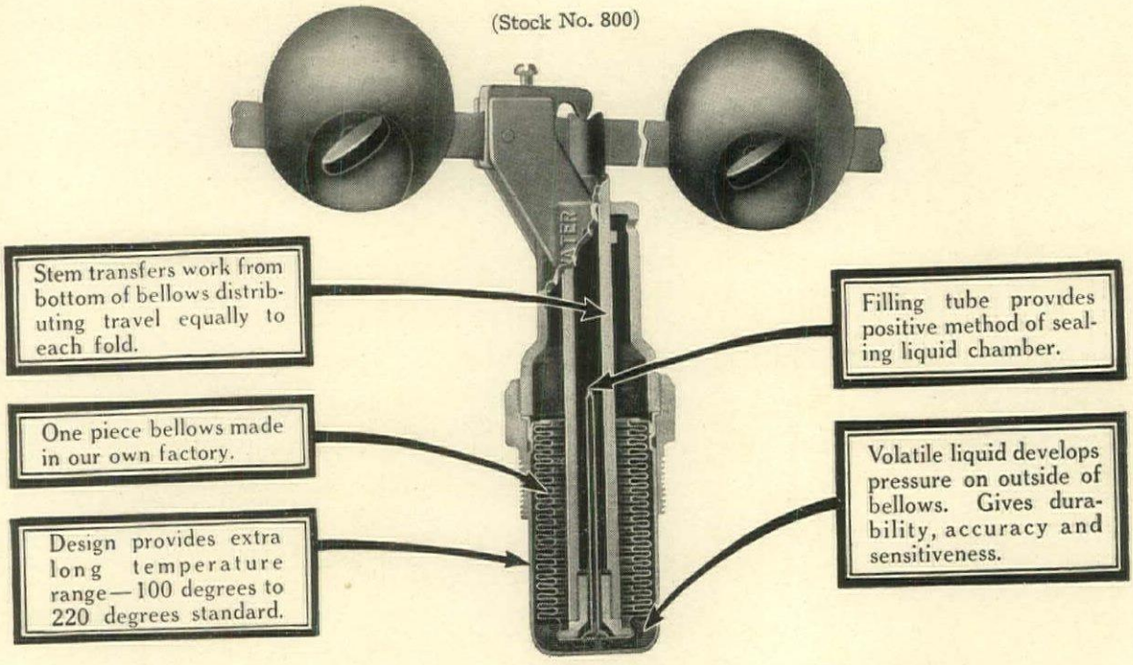
How much of the architect goes into the cellar?

ONE of the best signs that the architect's forethought extends from cellar to attic—is shown when he specifies a hot water damper regulator for the hot water heating system.

A house that is never too warm and never too cold—reminds the owner constantly that expert consideration was given to the selection of heating equipment. A hot water damper regulator —like ARCO—literally *commands the boiler to do its duty.*

There is a decided saving of fuel, because ARCO allows no more draft than necessary to keep the fire at a certain temperature. That's why the architect's service shows up in the coal bills.

(Stock No. 800)

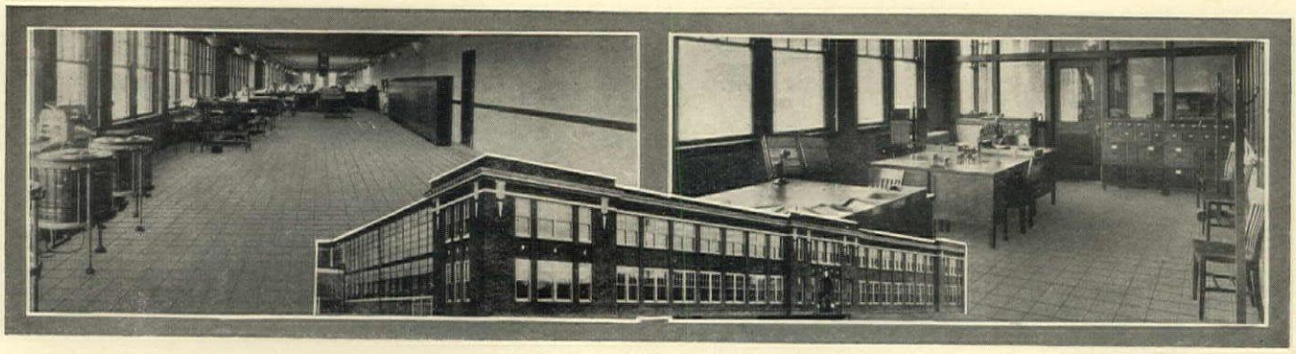


When you make ARCO Water Regulator part of your specifications, you are going a long way toward insuring comfort for your clients.

AMERICAN RADIATOR COMPANY

IDEAL Boilers and AMERICAN Radiators for every heating need

1807 Elmwood Avenue Dept. S 113 Buffalo, N.Y.



This Foote-Burt Building, Cleveland, Ohio. Geo. S. Rider, Architect, was awarded the medal given by the Cleveland Chamber of Commerce for the city's most artistic and convenient industrial plant built during 1921

In Cleveland's Prize Industrial Plant

Marbleloid Flooring is used throughout the Office Spaces, Corridors and Toilets of the Foote-Burt Building, Cleveland, Ohio. It was selected because it is the highest type of fireproof, sanitary and attractive composition flooring,—with a record of millions of feet in satisfactory use throughout Industrial Buildings in various manufacturing centers.

Marbleloid is resilient and untiring to the feet. It is positively fireproof, cold-proof, damp-proof and non-slippery. It never needs repairs or requires expensive upkeep. It can be laid upon old or new wood floors or concrete or steel. It transforms an old worn wood floor into a handsome, durable and sanitary modern floor. It can be supplied in different non-fading colors or color combinations. It is the most economical type of flooring you can buy.

Marbleloid possesses a tensile strength of 900 pounds per square inch and will not dust off under abrasion or wear, so is to be recommended for use in rooms where delicate machinery is to be used.

Marbleloid is a standardized light-weight composition flooring which is manufactured and installed by our organization, and which is guaranteed without restriction by us. It is laid plastic, sets in a few hours into a seamless, smooth surfaced floor, good for a life-time of service. It is specified extensively by architects for use in Offices, Power Plants, Laboratories, Hospitals, Restaurants, Cafeterias, Welfare Rooms, Workrooms, Display Rooms, Libraries and other industrial rooms and buildings.

Write for List of Industrial Plants which have given us repeat orders of from 3 to 30 orders; Samples; Specification; etc. Also see Sweet's

THE MARBLELOID COMPANY - 463 Eighth Ave. - New York City

MARBLELOID

The **Universal FLOORING for Modern Buildings**

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

MANUFACTURER ANNOUNCES~

Laminex—a *tested* Door

that will not *shrink, swell or warp!*

AFTER 35 years of continuous research and improvement in the manufacture of Douglas fir doors, we have perfected a process which we call Laminex—conceded by technical experts, architects and contractors to be the *last word* in "built-up" door construction.

By this process we overcome the *faults* in door construction which you have *always taken for granted.* These are due to the *tracheids* or cells of wood as it grows in the tree. When cut into lumber, these *tracheids* remain constant in length but expand and contract in width with changes of moisture content.

In Laminex doors we build up the parts that go into the construction of the door, using a special Laminex waterproof cement and squeezing the whole together by tremendous hydraulic pressure into one solid piece.

The result is two-fold: *First* the natural cavities of the wood are closed up; *Second:* the grain of the adjoining sections is so "crossed" that it equalizes all expansion and contraction and holds the whole in check, for wood cannot shrink in length and the Laminex cement is stronger than the wood.

Tested for water, heat and strength

In the Forest Products Laboratories, School of Forestry, University of Washington, Laminex doors taken at random from stock, underwent grilling tests. After soaking in water for twenty-four hours, *"the complete absence of warping and the very slight expansion due to moisture was especially noticeable."* Laminex doors subjected to a temperature of 185° Fahr. for twenty-four hours, showed no shrinkage. Laminex doors tested in a 200,000-pound Olsen testing machine stood unruptured under 912 pounds average pressure.

On October 13, 1923, in a great fire of the Davis Sash & Door Company at Nashville, hundreds of Laminex doors went through water and terrific heat, *not a single door showing signs of giving way, blistering or buckling, where nearly all other doors failed.*

Vertical grain stiles and rails

As a further development we perfected machinery to build Laminex doors with vertical grain stiles and rails. To our knowledge it's the first vertical grain, built-up door in a soft wood. We also make Laminex in the all-flat grain. Wheeler, Osgood plants and facilities for building doors are the largest in the world. We own standing timber, operate our own logging camps, lumber mills and door factories. Each year we build enough doors to supply the homes of a million people.

A door trade-marked and guaranteed

Every genuine Laminex door is trade-marked on the end, in addition to our gold label replacement guarantee. Specify them for your next job. Laminex has national distribution and can be obtained from leading building material dealers.

Write us for the *special monograph* on Laminex!

The Wheeler, Osgood Company

Tacoma, Washington, *"The Lumber Capital of America"*

Sales Offices: Chicago, Memphis, San Francisco, Spokane, Los Angeles

A WOCO PRODUCT

Manufacturers of "Woco" Douglas Fir Doors and Fir Sash

~DOORS

GROWTH DOUGLAS FIR~

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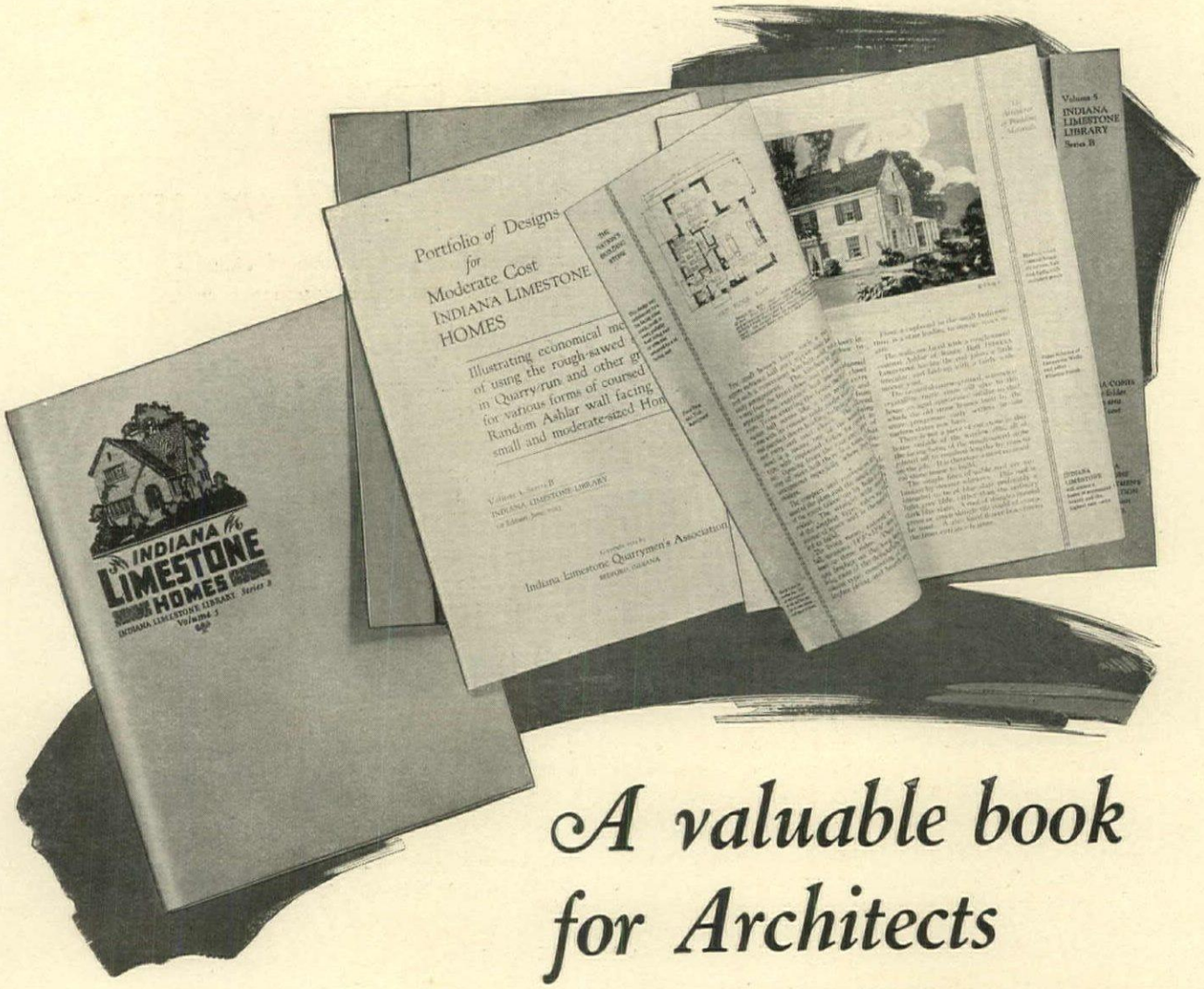
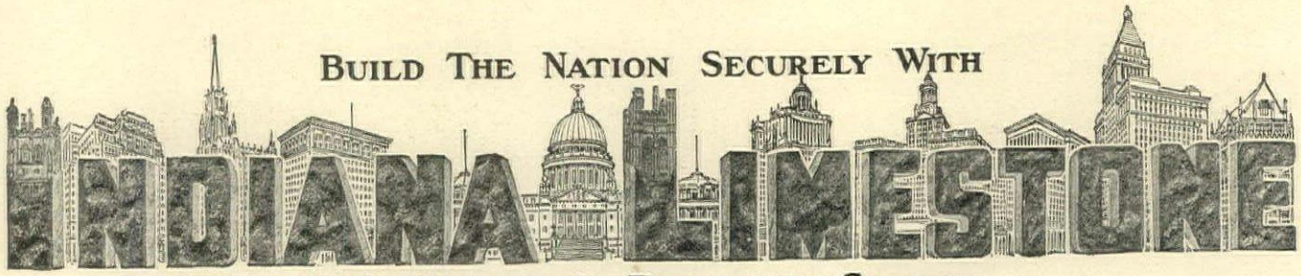


A valuable book for Architects

A PORTFOLIO of house designs prepared by a leading firm of Architects under the supervision of our Technical Director is just off the press. These designs combine economy of space with attractive arrangement of rooms, and will be a valuable addition to your reference file. This portfolio sent free to Architects requesting it on their office stationery. Address, Indiana Limestone Quarrymen's Association, Box 765, Bedford, Indiana.

BUILD THE NATION SECURELY WITH

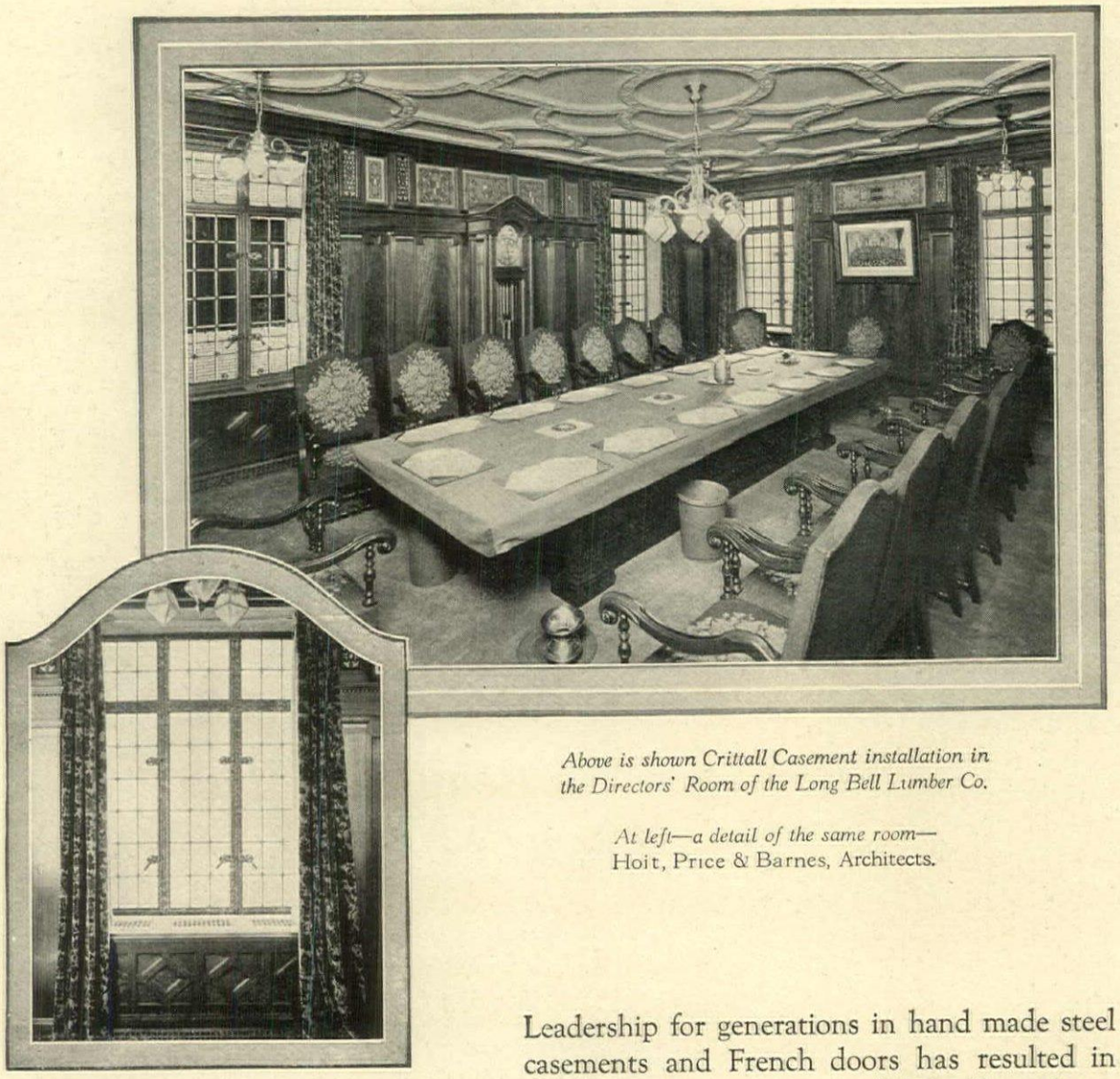


The NATION'S BUILDING STONE

Specifications of most products advertised in THE AMERICAN ARCHITECT appear in the Specification Manual

CRITTALL

Steel Casements



Above is shown Crittall Casement installation in the Directors' Room of the Long Bell Lumber Co.

At left—a detail of the same room—
Hoit, Price & Barnes, Architects.

Leadership for generations in hand made steel casements and French doors has resulted in unquestioning acceptance of Crittall products, as the standard of quality, in England and Europe as well as America.

We make deliveries punctually, accepting no commitments we cannot fulfill.

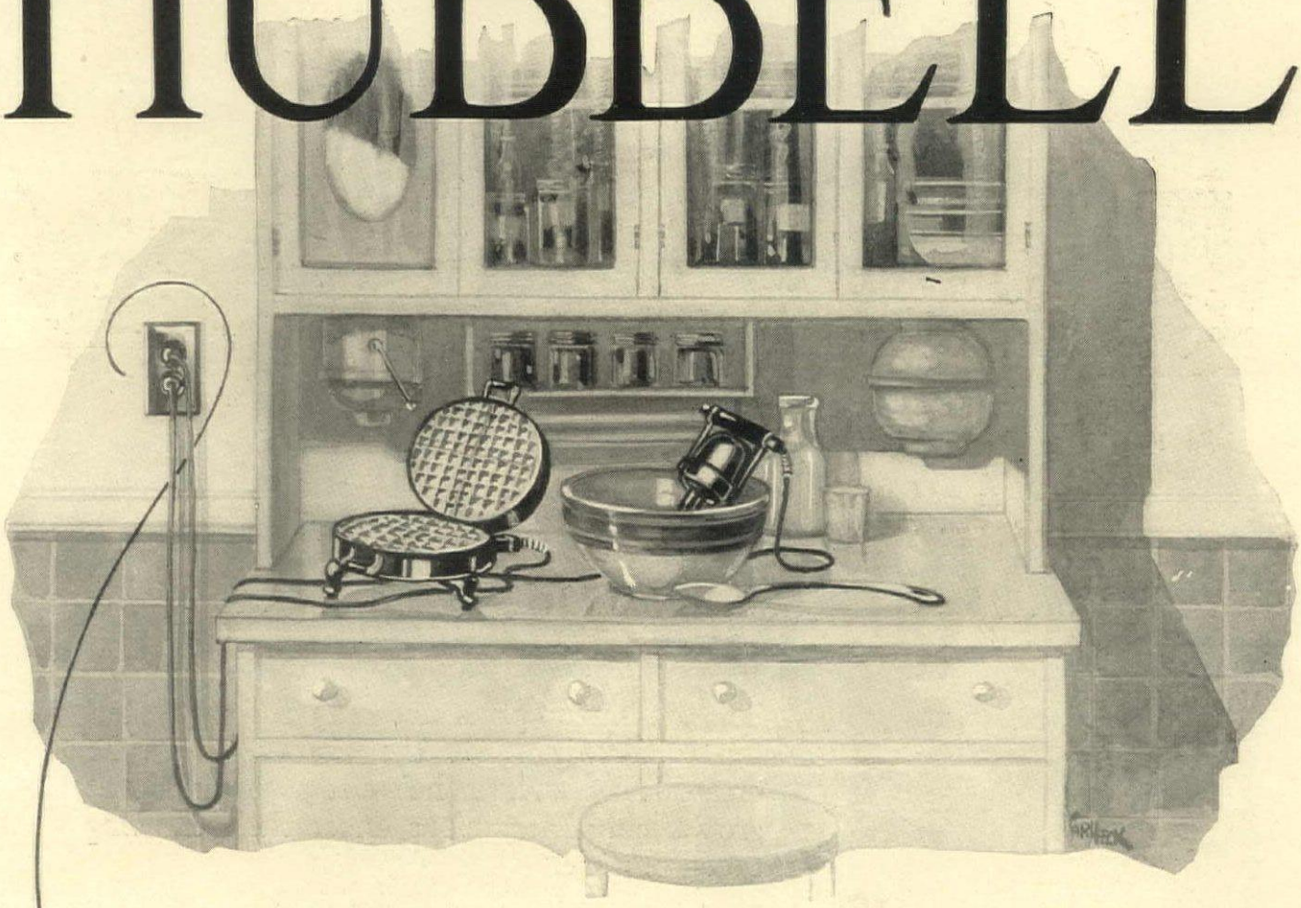
Our engineers' services will be placed promptly at the disposal of architects for the solution of unusual problems involving steel windows and casements.

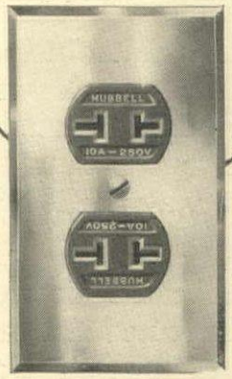
CRITTALL PATENTED UNIVERSAL

All Crittall Casements and Windows are made of Crittalloy —the Copper Bearing Steel

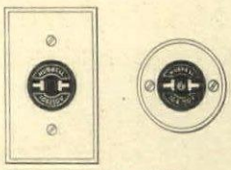
CRITTALL CASEMENT WINDOW COMPANY - *Manufacturers* - DETROIT, MICHIGAN

HUBBELL





Duplex Convenience Outlet. Composition body No. 5890; Porcelain body No. 6257. Stamped brass flush plate for either of above, No. 6258.



Hubbell Convenience Outlets are also made in the single types shown above, with round or rectangular plates.

For the Kitchen Cabinet —a Duplex Outlet

Waist-high—within arm's reach—close beside the kitchen cabinet. Here is one place where a woman client likes to find a Hubbell Duplex Convenience Outlet—providing connections for waffle iron, mixer, grill, or other electric kitchen appliance.

Hubbell Duplex Convenience Outlets take any standard plug cap, whether the blades be parallel or tandem. Made with shallow bodies for thin partitions.

Our fullest cooperation with regard to the most favorable location of convenience outlets in any class of building is gladly extended to architects.

HARVEY HUBBELL INC
ELECTRICAL WIRING DEVICES
BRIDGEPORT CONN. U.S.A.

2441-U

Remember it's the Te Slots, that make outlets "Convenient"

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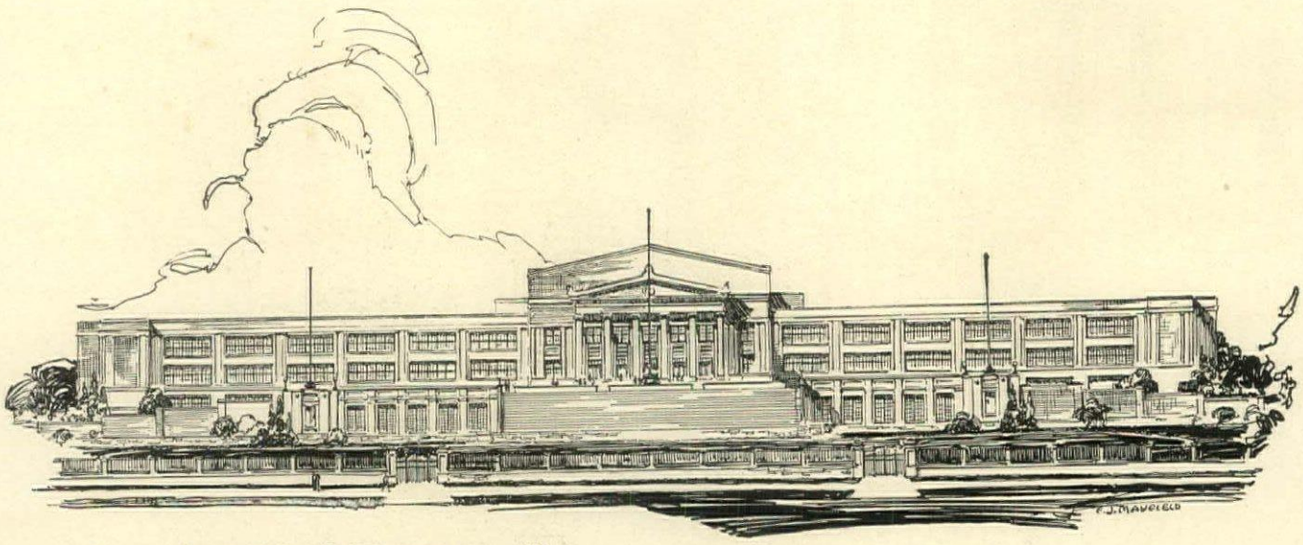

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Equipped with 63 UNIVENTS
CHAS. F. OWSLEY, *Architect*
Youngstown, Ohio

Capitalizing The Future

The Architect plans not only for today, but for tomorrow. That the beauty which he creates may endure, he selects material that grows more harmonious under the mellowing touch of time.

In the modern school building, the architect's ideals of beautiful simplicity are materialized.

His advanced ideas of light, sanitation and ventilation find expression in a simple way, not just because they fit in most admirably with his architectural plans, but because he has found the most effective way is the way founded on natural laws.

Univent Ventilation—fresh heated air from the window, uniformly distributed in each room, without draft, is the result of our close co-operation with architects. It is our wish to extend this co-operation to all architects. Write for our book, "Univent Ventilation," and see if it does not express your ideas and ideals.

UNIVENT
"LIVE OUTDOORS-INDOORS"
(TRADE MARK)

If it isn't manufactured by The Herman Nelson Corporation it isn't the Univent

THE HERMAN NELSON CORPORATION *Moline, Ill.*

1974 Third Avenue

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ROCHESTER	GRAND RAPIDS	MILWAUKEE	EMPORIA	SPOKANE	OMAHA

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Have YOU Investigated STEELEAD

The Everlasting Skylight Construction

These Architects Have Proven Steelead to be the Permanent Skylight They Have Always Wanted:

D. H. Burnham & Co. - - Chicago
Burnham Bldg., Chicago

Holsted and Sullivan - Duluth, Minn.
St. Louis County Jail, Duluth

Chas. A. Smith - Kansas City, Mo.
Finance Bldg., Kansas City

Clarke and Clarke - - Omaha, Neb.
Technical High School, Omaha

Jos. D'Esposito - - - - Chicago
Power House, Union Station, Chicago

Doyle & Merriam - - Seattle, Wash.
Yakima Valley Bank, Yakima, Wash.

H. C. Hibbs - - - Nashville, Tenn.
McQuiddy Co. Bldg., Nashville

R. L. Gamble - - - Topeka, Kas.
Library, U. of Kas., Lawrence, Kas.

Schmidt, Garden & Martin - Chicago
Michael Reese Hospital, Chicago.

Geo. P. McLean - Wilkes-Barre, Pa.
Peoples Savings & Trust Co., Nanticoke, Pa.

Pretzinger & Musselman - Dayton, O.
Frank Smith Paper Co., Middletown, O.

Grosvenor Atterbury - New York City
Metropolitan Museum of Art, New York

Jas. M. White, Univ. of Ill. Urbana, Ill.
Farm Mechanics Bldg., U. of I.

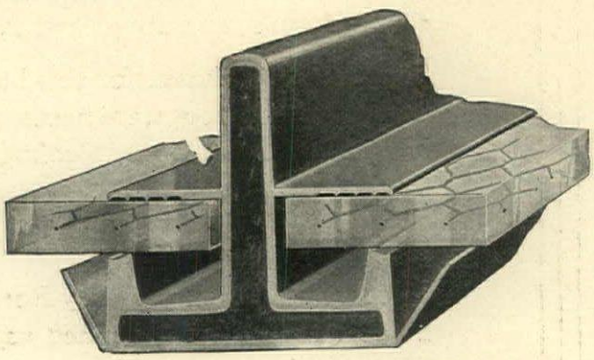
Link & Haire - - - Helena, Mont.
Montana Life Bldg., Helena
Lake Hotel, Gardiner, Mont.

Geo. P. Hardy - - New York, N. Y.
Cloquet Pulp Mill, Cloquet, Minn.

David S. Castle Abilene & Dallas, Tex.
West Texas Sanitarium, Abilene
McMurry Clooege, Abilene
Garrett Garage, Palestine, Tex.
Lydick Roofing Co., Abilene

Taylor & Hanna - - - Sharon, Pa.
High School, Sharon

These are but a few names, picked at random; more next month.



Cross Section Steelead Bar
Showing Steel "T" Core and Lead Sheath

Steelead Skylight Construction is a permanent installation. No paint; no packing; no upkeep; no repairs.

Every exposed part is pure, hard lead or lead coated. Resists attacks of weather, smoke, gases and fumes.

Architects who have investigated Steelead are specifying it in every skylight job they have.

If your office is not supplied with detail tracings and specifications, write for them.

AMERICAN 3 WAY-LUXFER PRISM CO.

Makers of Prismatic Store Front Transoms, Sidewalk Lights, and Skylights

1305 S. 55th St.
CICERO, ILLINOIS

358-368 Webster Ave.
LONG ISLAND CITY, N. Y.

Look at this

Common Furnace Complaints

"The following are some of the most usual subjects of complaint:

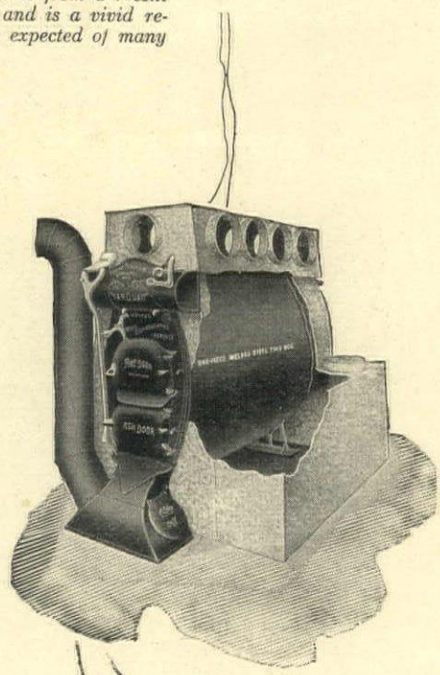
"First, furnace fails to give enough heat.

"Secondly, furnace fails to heat certain rooms.

"Third, furnace leaks smoke and gas up into the rooms.

"Fourth, furnace heats basement too hot.

The clipping shown here is from a recent issue of a Trade Paper and is a vivid reminder of what can be expected of many ordinary furnaces.



COMPARE such results as those mentioned above with the operation of the FarQuar Heating and Ventilating System in which are found the following exclusive features, each of which was designed to prevent the very evils mentioned in the above clipping.

A large fire-box and ample air capacities insure plenty of heat.

The FarQuar Vent and Return System insures a uniform distribution of heat to every room.

The FarQuar patented electrically welded, seamless steel fire-box absolutely prevents the escape of gases and fire poisons.

The shape of the FarQuar fire-box makes possible the easy movement of air, which, plus the complete insulation of the jacket, successfully keeps the heat inside the circulating system and prevents any heating of the basement.

The FarQuar automatic control maintains an even temperature with once-a-day firing and positively prevents any danger from over-heat and consequent waste of fuel.

When you specify the FarQuar System you can know your client will be entirely free from "Common Furnace Complaints." You will find the reasons fully explained in a special booklet for Architects sent free on request.

THE FARQUAR SANITARY HEATING AND VENTILATING SYSTEM

The Farquhar Furnace Company

102 FarQuar Bldg. - Wilmington, Ohio

Air Infiltration

Facts from unbiased authorities

Table on opposite page shows efficiency of Interlocking Strip over other forms of air infiltration control.

Something more than the mere statement of the manufacturer that his material will deliver certain results is today demanded by the architect. Proof from unbiased authorities is required—and properly so. It is the architect's only safe measure for protecting his reputation and assuring his client the service to which he is entitled.

We welcome the opportunity to submit in the table on the opposite page such evidence of the proved efficiency of Monarch Metal Weather Strips. The interlocking equipment used in these tests was

Monarch Strip No. 400

The tests extended over a period of ten months and more than 300 separate tests were made.

An application of these figures to your own problems will reveal some interesting facts on the subject of air infiltration and the saving effected by the use of Monarch Interlocking Equipment No. 400.

For example: At a wind velocity of 15 miles per hour with infiltration as shown in table, to raise temperature 0 to 70, the resultant comparisons follow:

Window	Air Infiltration Cubic ft. per hour	B. T. U. per hour	Square feet Radiation	Pounds of Coal per Season
Plain—Unstripped	2760	3500	14.60	2714
Rib Stripped	768	989	4.12	766
Monarch Stripped	525	668	2.77	517

Compared with plain unstripped window the reductions are as follows:

	In Air Leakage	B. T. U.	Radiation	Coal
Rib Stripped	72.2%	71.8%	72.3%	82.6%
Monarch Stripped	81.0%	81.0%	81.0%	87.0%

TABLE #1.

		Leakage C.F.M. Crack Perimeter 18' 4"				B. T. U. PER HOUR 0 - 70°F				20° - 70°F				Radiation Sq. ft. 240 B.T.U. per sq. ft. per hour 0° - 70° F				Lbs. of coal based on 13000 B.T.U. and 50% efficiency at radiator. 35° - 70°F for seven months.			
		For total Window		Per ft. Crack		For total Window		Per ft. Crack		Fortotal Window		Per ft. Crack		For total Window		Per ft. Crack		For total Window		Per ft. Crack	
Wind Velocity M.P.H.		14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9	14.4	24.9
Plain Window-very tight-unlocked.		19.0	40.0	1.04	2.18	1445	3040	78.7	166.0	1033	2170	56.3	118.5	6.02	12.67	.328	.692	560	1180	30.50	64.3
Plain Window- Tight-unlocked		22.0	46.0	1.20	2.53	1673	3500	91.3	192.5	1195	2500	65.2	137.5	6.97	14.60	.381	.802	648	1357	35.40	74.5
Plain Window- 1/16" to 1"Crack- unlocked		46.0	75.0	2.53	4.08	3500	5700	192.5	310.0	2500	4075	137.5	222.0	14.6	23.80	.802	1.290	1357	2213	7.45	120.5
Rib Strip	1/16" Crack	9.0	20.0	.49	1.09	685	1522	37.3	83.0	488	1087	26.6	59.8	2.86	6.34	.155	.345	266	590	14.45	32.2
	1/8" Crack	11.0	22.5	.60	1.25	837	1710	45.6	95.1	598	1223	32.6	67.9	3.48	7.12	.190	.396	324	663	17.70	36.9
	3/16" Crack	15.0	30.0	.82	1.63	1141	2262	62.2	124.4	815	1630	44.4	88.8	4.75	9.50	.259	.518	442	884	24.10	48.5
	1/4" Crack	18.0	36.0	.98	1.96	1370	2740	74.7	149.4	978	1956	53.3	106.6	5.71	11.42	.311	.622	531	1062	28.95	57.9
Interlocking Strip	3/16" Crack	7.0	16.0	.38	.87	533	1218	29.0	66.3	380	870	20.7	47.3	2.22	5.07	.121	.276	207	472	11.23	25.7
	1/8" Crack	8.5	18.0	.46	.98	647	1370	35.3	74.7	462	978	25.2	53.3	2.69	5.71	.147	.311	251	531	13.66	29.0
	3/16" Crack	9.0	19.5	.49	1.06	685	1483	37.3	80.9	489	1060	26.6	57.8	2.85	6.18	.155	.337	266	575	14.45	31.4
	1/4" Crack	10.0	20.5	.55	1.12	761	1560	41.4	85.0	543	1114	29.6	60.7	3.17	6.50	.173	.354	295	605	16.06	32.9

25189

Attention is called to the infiltration between the rib strip and the interlocking. Progressive ratio between the two strips is striking. For instance: With wind velocity 14.9 miles, the infiltration through Monarch Strip with a ¼″ crack is 10 cubic feet per minute as compared with 18 cubic feet through ¼″ crack with rib strip; while at 24.9 miles an hour, the leakage through ¼″ crack with Monarch is 20.5 cubic feet per minute as compared with 36 cubic feet per minute through crack with rib strip.

This ratio holds good in all the factors shown in Table 1. *The size of crack does not decrease the efficiency of Monarch Strip,* because swelling and shrinking has no effect, while the reverse is true of the rib strip, both in the size of the crack and the degree of wind velocity.

The Monarch Company has created an Engineering Department for the purpose of serving architects and engineers in the interests of better heating plants at a lower cost of installation and operation.

Monarch Metal Products Company

A. M. LANE, *President*

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Genasco protected!

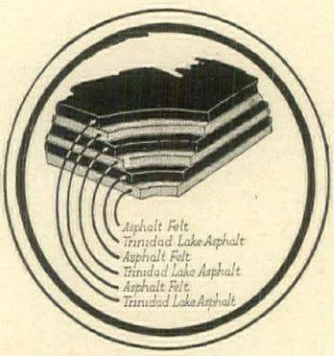
Of all the built-up roofing materials considered—Genasco Standard Trinidad alone was thought good enough and safe enough for the new Northland Hotel, Green Bay, Wisconsin.

Thousands of other buildings—including the largest and finest hotels, factories, schools, hospitals and public buildings in America—are Genasco protected.

Genasco Standard Trinidad is the *smooth-surface* built-up roofing made of Trinidad Lake Asphalt—one of the most weather and element resisting materials known to science.

Centuries of exposure to the sun, wind and storms of the tropics have but seasoned and toughened it—given it the durability and waterproofing qualities possessed by no other bituminous material.

Write at once for data and specifications.



Cross-sectional View of a Genasco Standard Trinidad Built-up Roof, showing method of construction.

THE BARBER ASPHALT COMPANY

PHILADELPHIA

New York	Pittsburgh	Kansas City
Chicago	St. Louis	San Francisco

Genasco

STANDARD TRINIDAD *Built-up Roofing*

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TRUSCON COPPER STEEL STANDARD BUILDINGS

IRONTON STOVE & MANUFACTURING CO.,
Ironton, Ohio, a factory group combining Sawtooth and Type 3-M Truscon Standard Buildings.

The Buildings That Meet Industry's Needs

The design of an industrial plant includes many buildings that are strictly utilitarian and should not entail the expense of special fabrication. Truscon Standard Buildings are of great value to architects in meeting this need.

You have unrestricted choice in planning your buildings as regards layout, length, width and height, arrangement and size of doors and windows, and various shapes of roof. Sidewalls may be copper-steel, brick or concrete as desired.

Our engineers will work with you closely and assist you in getting the results you are after. You have in every sense an individually designed building with the following added advantages:

(1) Exceptional low cost because made of standardized units

(2) Exact estimates of costs without extras

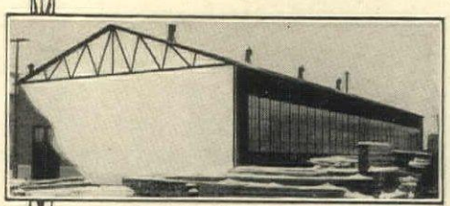
(3) Only one source of supply avoiding trouble and delays

(4) Complete shop fabrication assuring high grade workmanship

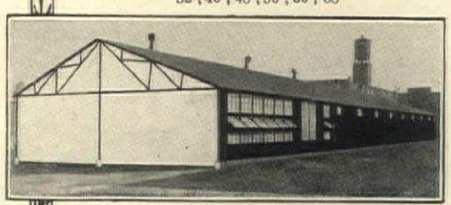
(5) Promptness in delivery and speed in erection

(6) Permanent and fireproof—steel windows and doors

(7) Complete service of a nation-wide organization



Type 1 (clear span)
Widths: 8', 12', 16', 20', 24', 28', 32', 40', 48', 50', 60', 68'



Type 2 (two bay)
Widths: 40', 48', 50', 56', 60'

Write for useful suggestions

If you are interested in any industrial construction, we can give you valuable assistance. Investigate these buildings; write for our suggestions.

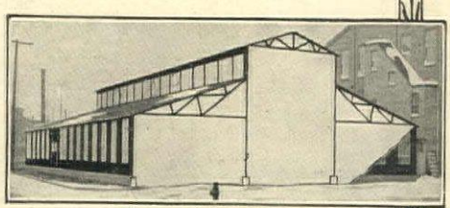
TRUSCON STEEL CO.
Youngstown, Ohio

Warehouses & Sales Offices from Pacific to Atlantic

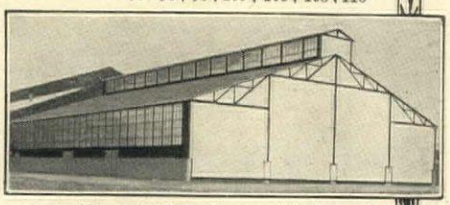
For addresses see phone books of principal cities

Canada: Walkerville, Ont.
Foreign Div.: New York

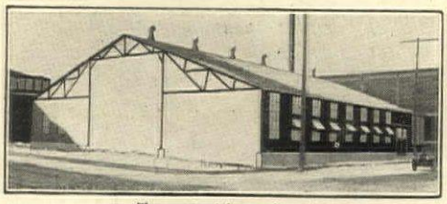
Leading manufacturers of Reinforcing Steel, Steel Windows, Standard Steel Buildings, Steel Joists, Highway Products, Metal Lath, Pressed Steel Stampings and Foundry Flasks



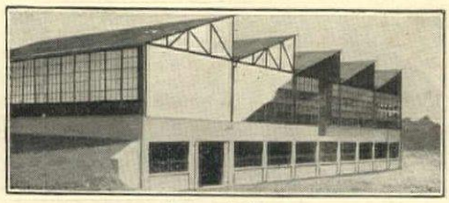
Type 3-M (monitor)
Widths: 60', 64', 68', 72', 76', 80', 84', 88', 90', 96', 98', 100', 106', 108', 116'



Type 4 (four bays) with lantern
Widths: 80', 100' 112'



Type 3 (three bays)
Widths: 56', 60', 64', 68', 72', 76', 80', 84', 88', 96', 98', 106', 108', 116'



Sawtooth Type
Widths: Any multiple of 28' 0"

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ARCHITECT, Paris diplomé, all around designer and artist with American, English and French office experience, open to engagement by architects or decorators. Responsible position in smaller New York office preferred. Part or full time. Address 137-B, care The American Architect. (2437-38-39)

ARCHITECT and Engineer desires connection with small office with view of partnership. Extensive training, experience, thorough on construction, reliable, age 30. Cleveland or vicinity preferred. Address 138-B, care The American Architect. (2438-39)

A GRADUATE of Harvard Graduate Business School, age 28, with some experience in business, in engineering, and in the designing, estimating, and building of residences desires association with architect or builder in section where much residence work is projected as in Blue Ridge or in neighborhoods of Boston, Philadelphia, etc., or with manufacturer of fine architectural materials. Address 139-A, care The American Architect. (2439)

ARCHITECTURAL engineer-draftsman. College graduate. Registered engineer. Six years' experience on commercial and industrial buildings, reinforced concrete and structural design. General working drawings, details, and specifications. Location Southeast preferred. Address 139-B, care The American Architect. (2439)

CHIEF DRAFTSMAN wishing to change employment desires similar position in first class office producing work costing at least four million dollars annually. Technical graduate with twelve years' office experience; three as designer, five as chief draftsman. Salary six thousand dollars. Address 139-D, care The American Architect. (2439)

POSITIONS WANTED

SCOTTISH architectural assistant, Aberdeen diplomé, desires position in American office. Anything considered. Construction, design, scheduling. Meanwhile in municipal office. Address Galbraith, 5 Crinon Place, Aberdeen, Scotland. (2439)

ARCHITECTURAL draftsman of experience and ability capable of handling big work from start to finish. Desires permanent position with good firm. Prefers position with some superintending. Salary $80 a week. Address 139-C, care The American Architect. (2439)

HELP WANTED

WANTED: One or two good senior draftsmen who can develop preliminary sketches into completed drawings. Good knowledge of planning preferred. State salary expected and give details of experience. Reply to DeVoss & Donaldson, First National Bank Building, Portsmouth, Ohio. (2439-40-41)

WANTED: First class architectural draftsman, capable of making rapid, interesting sketches as well as working drawings. Position is permanent for right man. State age, salary expected and experience. H. M. Haskell, 612 Hulett Bldg., Elmira, N. Y. (2439)

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Ballroom of
Blackstone Hotel,
Omaha, Neb.
W. V. Kernan, Architect

Exterior Blackstone Hotel

Soundproof qualities of partitions are essential to the successful operation of the modern hotel. Truscon Hy-Rib Metal Lath assures a soundproof, fireproof, crackproof wall. There is genuine economy and satisfaction in its use.

Permanently Attractive Interiors

The lasting impression of a fine interior goes a long way toward enhancing the reputation of its designer. A building to be a success from both an architectural and owner's standpoint must be permanently attractive.

Where Truscon Hy-Rib Metal Lath is used, there is an assurance of a permanent, fire-resisting, economical structure. The elimination of plaster cracks and the effective use of ornamental plaster work for cornices, balconies, columns, arches and ceilings are some of the reasons why Truscon Metal Lath is so widely used in structures all over the country.

The Truscon Metal Lath Data Book is brimful of useful and interesting information. May we send you a copy?

TRUSCON STEEL COMPANY

YOUNGSTOWN, OHIO

Sales Offices and Warehouses from Pacific to Atlantic
For addresses see phone books of principal cities
Canada: Walkerville, Ont. **Export Division: New York**

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