ROOSEVELT HOTEL, NEW YORK
FROM AN ETCHING BY RALPH SHEPARD
In the country outside Rome the Italians of the Renaissance built themselves great villas and gardens as places of retreat and refreshment, away from the stress of the city. Rome itself, in those days, could have imposed less pressure on its dwellers than one of our own suburbs of today, and it is doubtful if the most imaginative of the Renaissance Italians could have conceived of the pressure under which the present-day dweller in New York lives,—unless it were Dante, when he wrote the Inferno.

History, both human and architectural, inevitably repeats itself, so here, within half an hour from the heart of New York, a gracious and restful Italian villa has been built for Benjamin C. Riley, as a restaurant de luxe—the new "Arrowhead Inn"—by Dwight James Baum, Architect. Proprietor and architect, certainly, have joined in accord to good purpose, for this great Italian villa is successful in the only two ways in which such a building needs to be successful,—it is attractive and practical. It is attractive because it is designed with skill and imagination, in an essentially picturesque style of architecture; and it is practical because it is designed with intelligence and a thorough grasp of the special problems involved in a building of its type.

More than these two architectural points, the picturesque and the practical, the enlistment of architecture in providing a setting for dining de luxe has definitely proved to be good business. This I have on the personal testimony of Mr. Riley himself, who has been in the business of managing an out-of-town restaurant for 17 years. In spite of the well known public indifference to architecture, good or bad (an indifference which every architect has felt at one time or another), Mr. Riley told me that a great many people had commented on the architectural setting he had provided for them, when, in former days, they used only to comment on the meals. And, largely by reason of this new and attractive environment, he expects to keep "Arrowhead Inn" open all winter, and to have a patronage that will make it worth while to do so.

Even a brief analysis will serve to show how the architect achieved a successful building in conformity with the necessarily special requirements
THE GARDEN FRONT OF THE INN WITH ITS HIGH STONE TERRACE AND BROAD STEPS

THE PAVED DANCE FLOOR ON THE EASTERN LAWN
THE NEW ARROWHEAD INN
DWIGHT JAMES BAUM, ARCHITECT
involved. "Arrowhead Inn," built on a generous though not unlimited expenditure, seems to prove that economy of architectural means is by no means always a handicap, but may act as a stimulus when vision and resourcefulness are among the attributes of the architect. I think it could be made a demonstrable theory that economy of means forces the hand of the architect to make the most of every architectural opportunity afforded by the whole project, and thus makes for the attainment of strictly architectural values, rather than values resultant from superficial means, such as the use of showy materials, or from the mere profusion which an extravagant outlay can command.

The first architectural asset in the design of "Arrowhead Inn" was, obviously, its site, a commanding knoll of wooded land, broken with picturesque outcroppings of gray ledge rock. A raised site naturally aids the impressiveness of any building, and here the architect developed the design to express an effect of mass, made picturesque by his device of two towers of differing breadths and heights, differently treated. These serve to interrupt what would otherwise have been a monotony of horizontal roof lines and arched windows, and effect at the same time an interesting lack of symmetry in the whole composition.

The immediate foreground of the building, at present uncompleted, will consist of formal Italian garden terraces, with stairways and balustrades,—an outdoor eating environment of unusual attractiveness. With gay awnings and Deauville umbrella tables by day, and soft lighting effects by night, the whole outdoor aspect of the Inn will possess a truly Continental glamor, and as compared with provision for the 950 guests served on the temporary terrace this past summer, accommodation is being made for 1500 or more next summer, with al fresco entertainment as an attraction added to the present outdoor dance floor. This floor, by the way, is made of squares of alternating colors, waxed, the same material being used for the interior floors of the lobby and dining rooms.

The main mass of "Arrowhead Inn" is approximately 200 feet square, of hollow tile construction with cream-yellow stucco and roofs of handmade Italian tile in a range of dull reds. This roof distinctly escapes the mechanical effect of many roofs of its type, and is equaled in character only by a few in southern California.

The Italian villa, as an architectural type, has served most often in this country as a basis for the design of country houses, notably the fine and scholarly examples by Charles A. Platt. Seldom has it been utilized as Mr. Baum has adapted it for "Arrowhead Inn." The villa style in its simpler forms, not considering the Baroque elaborations of the later Renaissance, is peculiarly adaptable both in  

One Corner of the Women's Reception Room
its essentials of design and of construction.

In its design this type of Italian architecture demands, primarily, good proportion in its masses and in its large, plain wall areas. It demands no great profusion of detail, but requires good judgment in the allocation of detail and the best possible sense of scale in its execution. The effectiveness of “Arrowhead Inn,” certainly, does not depend on its detail, but upon its general proportions, and the relation of its main masses. Its front elevation possesses balance without symmetry. Between the two towers there is enough difference to emphasize this point as the center of the building, but not to the extent of throwing the long wings out of keeping. The close spacing of the three arched doors opening on the terrace from the lobby, and the deep shadow in the loggia above them accomplish all that is necessary at this point in the main facade. To have repeated the balcony and window of the right-hand tower on the tower at the left would have been to force an unnecessary symmetry.

In point of color this villa architecture may be carried out with as much or as little as may be required. In much of the recent work in Miami, in Florida, the architects have been mixing mineral pigments very liberally with the stucco, obtaining highly colorful results. A stucco exterior, at one time, was considered rather colorless and uninteresting, but its more recent developments have shown that it may be rich in color and interesting in texture.
In the “Arrowhead Inn” exterior stucco, no color effect beyond a rich cream has been attempted, and the texture is interestingly rough without being exaggerated. This raises the point of technique, which is a very important matter in the rendering of Italian architecture, and one in which many examples in this country have conspicuously failed. Even with excellent general proportions, a building that purports to be in the villa style of Renaissance Italy entirely misses its effect if its execution in detail is hard or mechanical. An easy quality of informality is quite as important as the scholarly element, perhaps it is more important. Recent analyses of the work of some of the great Renaissance architects, especially of the work of those who have written treatises on architecture, with pedantic rules and formulae, have shown that they themselves paid little or no attention to the rules when the rules interfered with the thing they wanted to do.

It is the quality of informality that contributes greatly to the success of “Arrowhead Inn,” making it not only good design in itself, but fitting and appropriate for its purpose as well. The same general scheme carried out unimaginatively and with any degree of self-consciousness would have missed the effect that has been so successfully attained here.

One problem with which the architects of Italian villas of the Renaissance did not have to concern themselves was the provision of parking space for automobiles, a very real problem in connection
SCALE DETAIL OF THE FLORENTINE WINDOW AND BALCONY, NEW ARROWHEAD INN
DWIGHT JAMES BAUM, ARCHITECT

274
THE ARCADED ENTRANCE AT THE NORTHERN END SHOWS THE FINE ITALIAN SPIRIT OF THE DESIGN

NEW ARROWHEAD INN, NEW YORK

DWIGHT JAMES BAUM, ARCHITECT
with such a building as "Arrowhead Inn." Extensive space was planned in the general layout here, but it will need to be increased next summer. This expansion is not to be attributed to inadequate planning, but to modesty as regards the restaurant's popularity and to greater patronage than was anticipated.

The plan of the building, so far as the public spaces are concerned, is simple. From the porte cochere, through an interestingly detailed pair of doors of wood, iron and glass, a long vaulted corridor, about 70 feet in length, leads to the lobby, which is about 50 feet square and a story and a half in height. The walls in both corridor and lobby are of rough textured plaster, colored a warm buff. The lobby, lying between the two large dining rooms, contains the office accommodation and space for the orchestra, and because of its almost complete absence of architectural detail it depends for its effect upon such purely architectural points as proportion and the treatment of its windows and other openings, which are excellently managed.

The walls of the two large restaurants are finished with the same rough plaster effect as the corridor and lobby, and both restaurants have ceilings of pecky cypress, very simply detailed and given an antique finish, later to be embellished with a little decoration in color, in the Italian or Spanish manner. The commendable thing about the dining rooms, as about the whole atmosphere of the place, is the restful, satisfying simplicity of its architecture, both outside and in. There has been no striving for superficial effects, and the result is an environment that cannot but be appreciated as a real escape from the insistent profusion of most city interiors, and of the whole feeling of the city, which, in this great, quiet villa, seems as though it must be at least a hundred miles away.

Connecting the two restaurants, behind the lobby, lies a third and smaller restaurant where 20 couples can dine in semi-privacy in booths. Each booth or alcove has its Italian table, and high-backed seats, covered with leather which is studded with bronze nails. This small restaurant has its own dance floor, and its chief architectural feature is its vaulted plaster ceiling which confers distinguished character.

In planning the kitchens it was necessary to provide adequate facilities for serving a considerable number of guests, and the equipment had to be as large and as complete as that of one of our great modern hotels. The kitchens and pantries, all of which have outside ventilation, are unusually large, and the layout includes separate refrigeration rooms for all kinds of perishable foods, special pastry pantries, ice cream rooms, supply storerooms and linen rooms. Every detail of convenience is provided.

The greatest problem of all, however, in laying out the kitchens was to arrange them so that a three-way service, to both the restaurants and the terrace out doors, could be managed without the confusion of waiters or guests crossing one another's paths. The proprietor, with years of restaurant experience behind him, admitted that he had never been able to see how a three-way, non-colliding service from one kitchen could be worked out; the architect's solution was to place the kitchen between the two large dining rooms, an obvious expedient; and to serve the terrace through a tunnel, an expedient not so obvious—in fact, highly ingenious; the result is an arrangement by which neither patrons nor waiters can ever cross one another's paths.

"Arrowhead Inn" is entirely a restaurant, the apartments on the second floor being the private residence of the proprietor and his family. Its atmosphere, unlike that of many similar places, is pleasantly like that of a large country house or club. It is refreshingly un-metropolitan and un-urban, and in spite of its large scale it succeeds in giving a feeling of privacy and exclusiveness. For this the credit is due to architecture and the architect, and it constitutes much of the latter's real reward for not only doing all that the problem required, but for a good deal more. Far too often this type of building entirely fails to realize its architectural opportunity. "Arrowhead Inn" not only realizes its architectural opportunity but improves upon it.

"Arrowhead Inn" may well come to be cited as a specific and definite proof that good architecture is a good business investment, a truth which, to many materialists seems to need such demonstrations.
The Roosevelt Hotel, New York

GEORGE B. POST & SONS, Architects

Another great hotel has been added to the so-called “Grand Central group” in the heart of New York. This great hostelry of 1100 rooms, which rises to a height of 22 stories above the street, has been named “The Roosevelt” in honor of the renowned late president.

The exterior, which is designed in a modified type of Italian Renaissance architecture, is constructed of Indiana limestone with terra cotta trimmings, except at the street level where the first story, containing numerous shops, has been emphasized by the use of Belgian Black, and black and white Grand Antique marble imported from the south of France. This treatment makes an effective enframement for the shops which fill three of the fronts of the building, but prevents a uniform and consistent architectural treatment of the facades from the sidewalk to the cornice lines. The facades, with their deep setbacks on the Madison and Park Avenue sides, rise to a height of 17 stories before the first cornice line is reached. Even this height is broken on the 11th and 14th floor levels. The Roosevelt is the first large New York hotel to be built since the going into effect of the zoning law, which has produced what is known as the setback type of architecture. Beginning on the 16th floor, due to these setbacks, many of the guest rooms open out on individual roof gardens, an attractive feature which no other city hotel has yet been able to offer to its guests. Each little roof garden will be given the necessary privacy by latticed screening, over which vines will climb in summer, and gay colored awnings, tea tables and easy chairs will add to the comfort and gayety of these little gardens.

The plan of no modern hotel has been more carefully studied from the point of view of completeness of equipment and convenience of arrangement than that of The Roosevelt. No detail which could possibly add to the comfort or convenience of the guests has been omitted. From the point of view of investment the plan has also been thoroughly developed, as is demonstrated by the arrangement of stores on the three street sides of the ground floor which open also upon the interior corridors. These hotel shops will therefore serve not only the public from the sidewalks but also the hotel guests from the interior corridors. A large proportion of the ground floor area has been devoted to store space, yet this has been accomplished without any sacrifice in the disposition of the public rooms. The relation of all the public rooms throughout the first three floors is in accord with modern metropolitan hotel requirements.

A study of the hotel plan, floor by floor, discloses these arrangements. Three subcellars are located under the Madison Avenue side of the hotel and extend back as far as the trackage space of the Grand Central Terminal permits. The eastern half of the hotel, which is built over the incoming tracks, has no subcellars, the ground floor being the first floor entirely covering the block bounded by the four streets upon which the hotel fronts. In the lowest of the subcellars are located the engine room, with its refrigeration and power plants, and a complete laundry for the hotel and its guests. This laundry is connected with the hotel proper by a chute through which linen can be sent down directly from any floor of the hotel. In this subcellar is also located a large incinerator which likewise connects by a chute with all the floors. The second subcellar is devoted to the steward’s department. Here all goods for the hotel are received, stored and distributed. Eight refrigerators, one each for fish, meat, fruit, smoked meat, poultry, butter and milk, cheese and vegetables, insure sanitary storage of food. Other features of this floor are an ice cutting machine, where fancy table forms will be made, an ice cream room for the moulding of frozen table decorations and desserts, a bakery with two ovens to produce the daily supply of various kinds of bread and rolls required, storage room for silver, linen, etc.; a large room with labeled racks for trunk storage, and a mechanical workshop for engineers, plumbers, steam fitters and electricians complete the equipment of this floor.

In addition to the 18 shops on the ground floor, there is located on the Vanderbilt Avenue side of the hotel a restaurant or grill with center dancing floor, around which a low balcony or terrace with wrought iron handrail provides a pleasant place for dinner or supper for those who enjoy dancing. Serving this restaurant are the pantry and service halls and elevators which connect with the main kitchen of the hotel on the floor directly above. On this ground floor are the two main entrances to the hotel. From these entrances the main floor is reached by monumental stairways, and the shops and grill room by long arcades which extend through to 46th Street and Vanderbilt Avenue. “The Mayflower Grill,” so-called, is designed in the Colonial style, and is interestingly lighted by chandeliers and wall brackets in keeping. The main floor, upon which are arranged all the principal public rooms of the hotel with the exception of the ballroom suite, shows a consistent and intelligent arrangement of rooms along the three principal street sides of the building. Broad, easy stairways lead from the...
entrance vestibules on 45th Street and 46th Street up to the main lobby, which occupies the center of the front part of this floor. In this lobby are located the main offices on one side and the six passenger elevators directly opposite. On the Madison Avenue side, parallel with this lobby and raised a few steps above it, extends a long, narrow lounge. Over the entrance vestibule on the 45th Street side is the oval Palm Room, which serves as a foyer or reception room for the large, formal dining room at the southeast corner of this floor. Stateliness and dignity have been given to this dining room by the height of the ceiling (the room extends through two stories) and by raising the floor three steps above that of the Palm Room.

One of the delightful and artistic features of this hotel is obtained by the many different levels of the public rooms. At the northeast corner of this main floor are located two breakfast rooms which also are on a higher level than the main lobby, necessitating an approach of several steps. The public rooms of this floor encircle and surround, in a U-shaped plan, the large main kitchen with its various pantries and service rooms. From this floor also, by means of a long staircase, the underground corridor is reached, connecting The Roosevelt with the Grand Central Station.

As the main lobby, the Palm Room and the large dining room, are two stories in height, only three-quarters of the mezzanine or ballroom floor above is available for rooms. Over the main kitchen and connecting with it by a large service pantry is the ballroom with its adjacent foyer and small banquet room. With this ballroom suite are connected six private dining rooms and a spacious library along the 46th Street side. This excellent plan makes it possible for many private dinners to be held in connection with any entertainment in the ballroom. On the Madison Avenue side of this floor are located a beauty parlor for women, a dressing room, toilets, and a large barber shop. The location of the kitchen is particularly practical and logical. Located in the center of the eastern side or rear of the hotel, it serves not only the grill on the basement floor, which is directly below it, and the main dining room and breakfast rooms which are either side of it on the main floor, but also the ballroom suite and private dining rooms on the mezzanine floor above. This centralization of the culinary department is one of the most interesting and practical features of The Roosevelt's plan.

There are no long flights of stairs for waiters to climb, and all of the rooms have daylight and fresh air, unusual with hotel kitchens, which are often located on basement floors below the street level. The equipment of the kitchen includes four large motor-driven machines to wash and sterilize the dishes and silver, an electric machine to peel...
potatoes, and another machine equipped to whip eggs, cream, etc. Two brick ovens weighing 85 tons provide the means for baking bread; another machine mixes flour in large quantities; 26 gas ranges, 12 gas-charcoal broilers and six large soup caldrons complete the equipment. Separate refrigerators which are provided for various foods are cooled by machinery with individual, control temperature equipment. All serving and work tables are of metal to prevent rust or any other form of corrosion. The floors of the kitchen and service rooms are of red tile with sanitary coved bases.

Above the mezzanine is the second or service floor, which has been equipped with every convenience for comfort that modern ingenuity and invention have produced. A Turkish bath and plunge occupy the center of this floor, around which are located temporary guest rooms or booths, 50 in number, 25 of which have cots and are fully equipped as dressing rooms. These small rooms, which are a new feature in hotel service, have many uses; guests who arrive when the hotel is full can be temporarily accommodated in these rooms, which will also be found useful when men and women after a day in town wish to change their costumes for an evening at the theater. The cost will be but a fraction of that of the regular rooms. Various executive offices and additional private dining rooms, hair-bobbing parlor, telephone switchboard rooms and linen room are also located on this floor. The principal feature of the third floor is the hospital, completely equipped with operating room, waiting rooms, and examination rooms, where a physician and trained nurse are always available. On the Vanderbilt Avenue side of this floor provision has been made for a roof garden over the ballroom, where tea and dancing may be enjoyed in an atmosphere of fountains, flowers and bright colored awnings. The remaining floors of the hotel are devoted to guest rooms, arranged so that they may be used singly or in suites. There are four large suites on the upper floors which will be furnished in the most luxurious manner possible. Each of these suites consists of a drawing room, dining room, three large master bedrooms and baths, dressing room, maid's room and separate pantry. On the 14th floor will be a playroom for children, to be known as the "Teddy Bear Cave," which will be furnished with toys and games of every description and in charge of a competent nurse who will care for children during the absence of their parents throughout the day. Adjoining this playroom is a sunny roof, adequately protected, where the children may play in pleasant weather. The 18th floor is devoted to carpenter, upholsterer, locksmith, paint and printing shops, valet headquarters and other indispensable service departments. On the 19th floor have been located kennels
Ballroom, Showing One of Arthur Crisp's Panels

and runs for dogs belonging to the guests, and individual cages where pets of any kind may be cared for by an experienced veterinarian.

Great credit is due to the architects of the Roosevelt Hotel, George B. Post & Sons, who were the engineers as well. They have succeeded in creating a most perfect structure, architecturally and mechanically, for the care and comfort of the traveling public. The engineering problem in itself was not simple. The foundations of The Roosevelt rest on lead pads on solid rock, thereby eliminating any possible subsurface vibration affecting the building, the total weight of which is 1153 million pounds. In some cases the weight carried by one steel column at its base is 4,000,000 pounds. The guest room floors are supported over the clear span of the public rooms below by steel trusses 53 feet long, the maximum load carried by a single truss being more than 3,000,000 pounds. 10,000 tons of structural steel were used in the construction of the building, the total cost of which was over $12,000,000.

For the interior architecture and decorations of the Roosevelt Hotel, the architects took as their inspiration the finest known examples of American Colonial architecture and decoration. These precedents were followed with unusual care, accuracy and good taste. Considering the great American after whom the hotel is named, no more appropriate style of architectural decoration could have been

Photos, Dries Duryea

The Oval Palm Room Is Designed in the Adam Style, Carried Out in Tones of Green, Blue and Old Rose
chosen, for the Roosevelt ancestry is closely identified with the history of this country from the days of the earliest Dutch settlers.

Among the early American buildings from which inspiration was derived for the design of the interior details of The Roosevelt, are the New York City Hall; "Homewood," the famous Baltimore home of the Carrolls, built in 1809; "Whitehall," a famous Colonial mansion of the 18th century; the "Octagon" built in 1810 in Washington; "Kenmore," an old Virginia mansion, built about 1753; the Gordon house in Savannah, built about 1800, and the well known Gibbs house in Charleston, built in 1753. Space does not permit a detailed account of each individual use of precedents from these various Colonial buildings. Only a general description of the interior architecture and decoration of the various rooms will be attempted. Entering the main lounge by the stairway from the entrance vestibule on 45th Street, an impression of unusual dignity and refinement is obtained from the tall, fluted Corinthian pilasters and coffered ceiling of the main lounge. The walls, pilasters and cornice are of travertine, while the plaster ceiling is painted in old ivory and dull gold. Rugs in soft tones of blue and old gold, as well as the rich brocades and velvets used for the furniture coverings, add warmth and richness to the color effect of this great room. The iron balustrades which are copied from those of an
HOMELIKE ATMOSPHERE OF BREAKFAST ROOM IS PROCURED THROUGH USE OF A LANDSCAPE PAPER

GRILL ROOM ON THE GROUND FLOOR HAS A LOW BALCONY ON ALL SIDES
THE ROOSEVELT HOTEL, NEW YORK
GEORGE B. POST & SONS, ARCHITECTS
VIEW OF MAIN DINING ROOM, SHOWING MURAL PANELS BY N. C. WYETH

ONE END OF THE LONG LOUNGE OVERLOOKING MADISON AVENUE.

THE ROOSEVELT HOTEL, NEW YORK

GEORGE B. POST & SONS, ARCHITECTS
old house on Irving Place, New York, add notes of interest to the various openings between the grouped pilasters. The main lobby is separated from the Palm Room at the south by pilasters and flights of low steps at either side. Treating the Palm Room as a continuation of the main lobby adds still further to the dignity and spaciousness of this room. The so-called Palm Room, which really serves as a foyer and reception room for the main dining room, is elliptical in shape and decorated in the Adam style with marbled columns and painted wall decorations in pleasing shades of soft green. The wall decorations themselves suggest Chinese Chippendale influence. The beautiful carpet in soft tones of green, yellow and rose has also been designed in the Adam style. Painted and upholstered chairs and sofas are attractively arranged in groups with tables and lamps to form many centers for conversation and conference. The heavy hangings at the windows are of a rich yellow damask which contrasts delightfully with the gray-green of the walls and columns. Touches of dull gilt in the capitals of the columns, the mirror frames, chandelier and wall brackets, add still further to the effective color scheme of this richly satisfying room.

A few broad steps lead from the Palm Room into the main dining room, at the eastern end of which a low balcony with marble balustrade adds dignity and interest. The architectural details of this room are pure Colonial, the inspiration for which was largely derived from the decorative detail of the New York City Hall. The whole effect is one of monumental dignity and reserve. The paneled walls, the fluted pilasters, richly decorated entablature, and high arched windows hung with heavy draperies, reproduce with remarkable accuracy the atmosphere of a great Colonial banquet hall. On the north wall of this room a painting in three panels by N. C. Wyeth recalls the discovery by Hendrik Hudson in his ship, the “Half Moon,” of the river which now bears his name, forming a pleasant note of color and interest on a long wall which otherwise would have been monotonous. The ivory white of the woodwork and ceiling in this Colonial period, old Dutch tile forming the face of the fireplace opening. One flight above this main floor is the Colonial ballroom with its colorful wall panels by Alfred Crisp, representing the story of Cinderella. The tall windows of this well proportioned room were inspired by those of the Chase house, built in Annapolis in 1770, while the design of the cornice is taken from the old Brewster house built in Charleston in 1760. The ironwork of the elaborate balcony railing, decorated in dull gold and silver, is taken directly from a design by Robert Adam, and the Colonial detail of the ceiling is derived from “Kenmore,” an old Virginia mansion. The warm tones of ivory and old gold give a richness to the splendid architectural details.

The consistent use of Colonial details and decorations throughout both the public and private rooms of The Roosevelt produces a consistency of decorative design seldom found in the modern hotels.
THE PARK AVENUE FACADE SHOWS AN INTERESTING ARRANGEMENT OF THE REQUIRED SETBACKS

GROUNDFLOOR PLAN

BALLROOM FLOOR PLAN

THE ROOSEVELT HOTEL, NEW YORK
GEORGE B. POST & SONS, ARCHITECTS
CORNER OF MAIN LOBBY, LOOKING TOWARD OFFICE
THE ROOSEVELT HOTEL, NEW YORK
GEORGE B. POST & SONS, ARCHITECTS
LOOKING FROM THE OVAL PALM ROOM INTO THE MAIN DINING ROOM

THE ROOSEVELT HOTEL, NEW YORK

GEORGE B. POST & SONS, ARCHITECTS
Architectural Library
CORNER OF MAIN DINING ROOM SHOWING FINE COLONIAL DETAIL.

THE ROOSEVELT HOTEL, NEW YORK
GEORGE B. POST & SONS, ARCHITECTS
THE ELEVATOR LOBBY HAS A VAULTED CEILING IN DULL GOLD

ENTRANCE FLOOR PLAN

THIRD FLOOR PLAN

CHAMBER OF COMMERCE BUILDING, NEWARK
GUILBERT & BETELLE, ARCHITECTS
Architectural Library
GARDEN FRONT

ENTRANCE FRONT

HOUSE OF DR. HAROLD L. SPRINGER, ROCKLAND, DEL.

BROWN & WHITESIDE, ARCHITECTS

Photos, Tabbs & Knell
HOUSE OF DR. HAROLD L. SPRINGER, ROCKLAND, DEL.
BROWN & WHITESIDE, ARCHITECTS
House of J. G. Kellogg, Esq., Winnetka, Ill.

CHATTEN & HAMMOND, Architects

In wide acreage overlooking the Skokie Valley is located the Italian villa of Mr. J. G. Kellogg. To take advantage of the extensive view from the site selected, the house was carefully located. Besides the main house there is the large building which contains a four-car garage, apartments above for chauffeurs, and stable and wagon storage, shown on page 288. There is also a small gate lodge at the entrance to the estate.

The residence itself is set back from the main road far enough to permit the grouping of all the buildings upon a curved drive in a manner which adds greatly to the interest and effectiveness of the entire composition. All of the buildings are constructed of hollow tile finished on the outside with cement plaster of a rough, uneven texture and of a color to harmonize with the roofs, which are of mottled Spanish tile in soft tones of dark red and brown. The trimmings are in buff Indiana limestone, with a few details executed in polychrome terra cotta. The interior walls of the main portion of the house are of plaster, sponge finished, painted and glazed. Floors throughout the first story, except in the library and service portion, are of tile. In the living room a dark brown tile has been used, and the wood wainscot is finished in brown with moldings brought out in dull blue and gold. The tile floor in the hall is gray and black faience, while in the studio tile of blue and black are used. The wainscots of all bathrooms are of colored tile in mat finish. The special feature of the house is the studio, which has been built to provide a place of greater privacy and seclusion for the family. A loggia and broad terrace open off this room, from which an extended view over the Skokie Valley may be enjoyed. The walls of this studio are tinted to contrast with the dark ceiling of redwood. From this room a private stairway leads to the master’s suite on the second floor, the stairs occupying a corner tower.

The service wing has been planned to give ample cross ventilation to all the rooms. A large laundry and servants’ dining room, having windows on three sides, occupy the end of the service wing. Above the service rooms on the first floor are the servants’ bedrooms and bath, which are reached by a small stairway from the passage leading to the laundry.

In design the exterior of the house follows closely Italian prototypes found in the smaller villas around Florence. The rough, stucco-covered walls, tinted in tones of dull yellow, rise two stories to the low
pitched roof of brown tile. Iron balustrades and grilles, in addition to the stone decorations of the entrance arcade, further emphasize the Italian spirit of the house. The exterior design, although unsymmetrical, is well balanced. The large studio wing at the north end of the house is balanced by the long service wing at the south. The small arched windows of the studio with their heavy iron grilles give a medieval touch to the high plaster walls of the studio wing. Approaching the entrance side of the house, a low stair tower is discernible above the flat roof of the studio. This stair tower, with its arched windows and pyramidal tile roof, still further adds to the Florentine appearance of this villa. The garden front shows less formality of design than the entrance facade. Here the long terraces of the living room and the studio loggia effectively add to the composition, which is well studied as regards picturesque balance. The square stair tower fits pleasantly into the composition in the angle formed by the studio and main house. The vertical lines of the tower are offset by the horizontal lines of the studio and loggia roofs. This composition of tower, low loggia and the projecting two-story bay of the library is balanced by the length of the main house extending to the south and the large breakfast
porch off the dining room. The composition is still further continued to the south by the service wing of the house and the picturesque garage and stable buildings beyond. Although not close in its adherence to Italian precedent, the design as a whole suggests a pleasant compromise between modern requirements and ancient precedents. A certain freedom in the handling of all details gives a distinctly American feeling to this Italian villa design.

The plans show a well studied arrangement of living rooms and halls. Entering through a large arcaded loggia, a view is obtained out over the west terrace, through the doors of the living room, which are on axis with the front door. The main hall runs the long way of the house, having a graceful circular stairway opening midway of its length. The principal room in the main house is the living room, 21 by 32 feet. This room opens onto a broad flagged terrace overlooking the lawn and distant valley on the west. To the south of the living room is the square dining room with its curved alcove bay, while to the north is the library with high bookcases and deep bay windows. At the north end of the entrance hall the studio is entered through a passageway which is paneled from the tile floor to low, vaulted ceiling, as may be seen in the illustration on page
287. The studio, which is 20 by 30 feet, practically the same dimensions as the living room, by reason of the added height of the ceiling with its exposed beams is given an appearance of greater size than the low ceiled living room. Rough plaster walls with tile base are used throughout the first floor of the house. These walls give severity and dignity to the decorative effect of the interior, which is relieved by the use of antique Italian and Spanish furniture, candelabra, and mirrors. Color in the various rooms is obtained entirely by the use of rich toned tiles for the floors and interesting brocades and linens for the window hangings and furniture coverings. The fireplace in the living room is decorated with a richly carved enframement of mouldings, while the chimney piece in the studio is carried out in severe interpretation of the Italian style. A balustraded balcony in dark redwood adds interest to the left wall of the studio, connecting with the landing of the circular stairway in the tower, leading from the studio up to the master's suite on the second floor.

The square dining room, which is located at the northwest corner of the house, opens into the living room and connects by a square entry with the main hall. Directly back of this room is the large serving pantry, which has two openings into the kitchen. One of these openings is through a pan closet, which is rather an innovation, connecting with the butler's pantry. The large kitchen has outside ventilation on opposite sides, as it extends the entire width of the wing of the house. Ample storage, refrigeration and pantry spaces have been provided. The plan of the entire service department shows care and thought in the manner in which it has been worked out for the comfort and convenience of all.

The plan of the second floor of the main house, which in outline exactly duplicates the lower floor, contains six master bedrooms, a large sitting room, dressing room and four bathrooms. Two of the latter are located so as to be accessible from two bedrooms each. The height of the studio ceiling prevents the locating of any rooms above it. The sitting room in the master's suite, situated in the center of the house without windows, is lighted by an elliptical ceiling light which gives this room the quaint effect of a salon on a private yacht. The bedrooms of the second floor, like the living room on the first floor, are all finished in rough plaster and furnished with antique Italian, Spanish and French furniture. A pleasing consistency has thus been achieved in the interior as well as the exterior of the Kellogg house.

This same consistency in design is found in the farmer's house and the large garage and stable building, where stucco walls and low roofs of red and brown tile repeat the materials and treatment of the main house. These two service buildings have been wisely located on the arc of a circle formed by the entrance drive, intruding in no way upon the formality of the entrance courtyard, so that approaching the house the eye is led pleasantly to the long, low Italian villa lines of the house itself, which remains the dominant feature of the group. The low roofs and projecting wings of the garage and stable building are repeated in the farmer's house with which it is connected by high, stucco-covered walls.
DESIGNED in a simple adaptation of the English farmhouse style, this stucco house owes its charm to carefully studied proportion and informal balance of design. The stucco is tinted soft ocher and the trim stained brown. Gay orange awnings edged with blue add color to the design during the summer months. During May, when the house was photographed, the pink and white blossoms of the old apple trees in the midst of which the house is located stood out in pleasing contrast to the warm tones of the stucco walls. The roof of the house is stained in tones of brown, copper and dull green, sufficiently deep in tone to hold down the lighter tone of the walls. Deep yellow chimney pots on the tops of the stucco-covered chimneys give the final touch of color to the entire design, expressing and emphasizing its character.

The lot on which this house is located is not large, but the house has been so well placed that a feeling of complete isolation and privacy is obtained from the garden front of the house, where a paved terrace as well as a small covered porch gives ample opportunity for out of door life during the summer months. On this garden front tall casement windows help to connect more intimately the living rooms of the house with the terrace and flower garden adjoining. An oriel window roofed with copper gives a note of interest and picturesqueness to the otherwise formal garden facade of the house.

The plan is as simple and direct as is the exterior design. From the entrance door a small vestibule is entered, off of which is a good sized coat closet. From this tile-floored vestibule two steps of travertine lead up to the floor of the main entrance hall. A wrought iron handrail guards the steps on one side, while the start of the main stairway, which rises over the entrance door by means of a long landing, protects it on the other side. The wrought iron handrail and newel of this stairway are exceedingly interesting in design and execution. Heather brown tile of varying tones form the floor of this hall, adding a warmth of tone which contrasts pleasantly with the soft buff of the rough plaster walls and the dull brown stain of the cypress doors and trim. Hangings of Italian damask in red add a further cheerful note to this inviting entrance hall.

Opposite the front door in this hall is a wide triple window with casements which gives a delightful vista out across the flagged terrace to the rising hills back of the house, dotted with picturesque and
fantastic shaped apple trees, under which the terraced flower garden climbs the hill back of the house. The living room on the left of the entrance hall occupies the entire western end of the house, permitting windows and tall casements on three exposures. At the north end of this room two casement windows open out onto the stone terrace, while at the west another opens onto the covered porch which is glazed in during the winter months to form a sun porch. The rough plaster walls, trim and doors of this living room are painted a delightful shade of warm gray-green. The large rug, which almost entirely covers the dark stained oak floor, is of a deep mulberry color, while the long window draperies, which are always drawn together at night, are of an unusual shade of soft yellow. This color scheme of mulberry, yellow and green is repeated again in the English chintz which covers many pieces of the furniture in this room. The facing and hearth of the fireplace are of Verd Antique marble in a deep shade, and on the shallow mantel shelf above the fireplace two vases of Chinese red add an interesting note of color against the green of the wall. A more delightful combination of colors than are combined so successfully and
pleasantly in this room could hardly be imagined. Arched doorways containing solid, paneled doors lead from the entrance hall into the dining room as well as the living room, these doors, when opened, permitting an uninterrupted view from the covered porch adjacent to the living room, into the house, across the living room and hall into the dining room, where an old Italian mirror hangs on the inner wall. This axial vista is one of the charming features of the house.

The decorative scheme in the dining room is quite as unusual and delightful as that of the living room. Illustrations unfortunately convey no idea of the color which makes these rooms so appealing. In the dining room the walls are painted an unusual shade of blue, in which, through a yellow glazing applied on top of the last coat of paint, interesting texture and warmth of tone have been obtained. Blue is generally considered a cold color, but when treated with a warm glaze it takes on a remarkable warmth of tone. Against the blue walls of the dining room an old Coromandel Chinese screen in red lacquer with designs in black, as well as two old cabinets of red lacquer made in England during the Chippendale period when the Chinese style enjoyed
temporary popularity, gives delightful notes of color against the blue walls. Otherwise, the furnishings of this room are old pieces of French walnut of the Louis XIV period. Above the heavy bolection moulding of black and gold marble which surrounds the fireplace opening an interesting architectural decorative painting adds interest to the design. Over the dark stained oak floor the Chinese rug in tones of brown and blue ties together the decorative scheme of this interesting room.

On the right of the entrance hall, back of the dining room, is a small study in the Colonial style with old fashioned buff wallpaper and trim and woodwork painted to match. A large triple casement window floods this room with sunshine during the day, and the open fireplace permits the cheerfulness of burning logs at night. Above the Colonial mantelpiece is a very unusual mirror in gold and cream of the Empire period. Opening off the study is another good sized coat closet and a lavatory. This room is furnished in Colonial mahogany. Window draperies of blue still further emphasize the Colonial color scheme of blue and buff, as does also the blue toned rug which covers the floor. The colored English mezzotints in black glass mats and black frames supply an interesting note of contrast against the buff wallpaper, reproduced from an old house in Portland, Maine.

The principal bedroom, a corner of which is shown on page 291, is decorated in tones of apricot and green. The walls are covered with a soft apricot wallpaper, the color of which is exactly matched in the woodwork and doors. The flounced window draperies are in apple green, as are also the coverings of the window seat and bed. The chaises longue and easy chairs are upholstered in an English printed linen which repeats the green and apricot colors of the room. The rug which covers the floor is of a deep taupe. Another bedroom is decorated in yellow and green with touches of blue. Here a Chinese paper of yellow ground with small landscapes in green and blue forms an interesting wall covering. The woodwork and doors in this room are painted the same shade of yellow as the wallpaper. The casement windows which look out into the garden and orchard behind the house are draped with hangings of bluish-green, repeating the blue-green deko-

A Chinese Screen Conceals the Door from Dining Room to Pantry
A Renaissance Garden at San Domenico, Florence

By ROGER WEARNE RAMSDELL and HAROLD DONALDSON EBERLEIN

THE great Italian gardens of the Renaissance and of the succeeding Baroque age were not always the finished creations of marvelous beauty and compelling charm that we see today. There was a time in the history of nearly every one of them when they were as naked and harsh in their newness as the still uncompleted Victor Emmanuel Monument in Rome. It could not well be otherwise. Gardens, either great or small, do not come suddenly into being endowed with all the grace of mellow, subtle maturity, fully grown, like Minerva springing from the head of Jove. This is a truth that many concerned with the making of gardens, especially a certain type of clients, possessed of enthusiasm and abundant means but with little philosophic patience, are too likely to overlook.

The great garden makers of the past had faith and vision; we have the ripe enjoyment of what their faith and vision created, and for this fullness of pleasure we owe a debt of gratitude to the garden makers who planned and labored centuries before we were born. To enter the garden of the Villa d'Este ought to be enough to inspire in us a lively sense of personal obligation to Cardinal Ippolito d'Este and Pierre Ligorio. And familiarity with the garden can only increase our reverence for the Cardinal and Ligorio if we regard a picture of the place painted just after its completion. It is a curious picture, showing with brutal and picturesque frankness every detail of the scheme. There is visible none of the grace or glamour resulting from more than three centuries of growth. The planting, in its naked, scrubby scantiness and puny size, creates the impression of a well ordered vegetable patch in its incipient stages. To have embarked on a work of such magnitude with so little apparent justification or prospect of immediate enjoyment called for the exercise of faith, vision and patience more effective and pleasing results could be obtained by well ordered method than by any amount of whimsical or even ingenious affectation of naturalistic savagery—that grotesque fallacy into which "Capability Brown" and his followers were destined to fall several centuries later, to the utter undoing and destruction of some of the finest old gardens in England, Italy and France. It should be noted that flowers are not contemplated in the structural scheme of this garden. They are incidents, and highly agreeable and desirable incidents, but the garden is so devised that it has just as much coherence and poise without them as with them. This is a thing worth remembering today when gardening has not yet wholly escaped from the absolute floricultural thralldom of the last century.

The chief divisions, the central pool and the walks, are edged with low growing box. In the center of the garden, and indicated by square black dots on the plan, are stone piers at each end of the path. Arched iron bars from one to the other form trellises, and the rose vines are festooned from these points to the loggia. The loggia is not roofed, but an iron framework (replacing the ancient pole equipment), resting upon the columns and sloping upward to the house wall, gives support to a heavy growth of wistaria that forms a complete shelter. The wrought iron gate leading from the loggia into the tool house, which is shown together with the early eighteenth century or Barrochino wooden
DETAIL OF A CORNER OF THE GARDEN AT SAN DOMENICO, FLORENCE
gates set in the doorway between the tool house and the garden on the detail sheet of measured drawings on page 296, is very free and original in design, suggesting Spanish ironwork of this period. The field of the design shows the use of scrolls bound together and grouped in such a way as to produce a symmetrical pattern, which is further emphasized by vertical and horizontal axes, culminating in large center rosettes and hand-pressed sheet iron. The border again shows symmetry in the use of corner rosettes and scrolls which break the four sides of the axial points. The whole effect of the design is refined and unusually decorative. In the stone entablature of the doorway, in which this gate is placed, there is found a corresponding delicacy of handling in the fine mouldings and small brackets.

Of equal interest and originality in design are the wooden gates in the doorway of the tool house. The design of this double gate is more formal in character than the wrought iron gate in the loggia; in fact, it differs so greatly in character that it was undoubtedly the work of a different craftsman. The field is occupied by straight balusters of wood, with heavy center stiles dividing each gate into two parts. At the bottom of the design a flowing scroll is carved in the base of the gate, while oval-shaped scrolls terminate each of the balusters, forming a continuous decoration at the top, as well as the bottom of the gates. In the field of plain balusters, graceful scrolls freely handled interrupt and relieve the simplicity of treatment. A delicate cresting with fleur de lis finials decorates the top of the gates.
WOODEN GATES.

THE ARCHITECTURAL FORUM

December, 1924

WOODEN GATES.

SCALE DETAIL OF THE WOODEN GATES.

OLD RENAISSANCE GARDEN AT SAN DOMENICO, FLORENCE.

WOODEN GATES TO THE TOOL HOUSE.
SCALE DETAIL OF IRON GATE FROM THE LOGGIA

WROUGHT IRON GATE FROM THE LOGGIA INTO THE TOOL HOUSE

OLD RENAISSANCE GARDEN AT SAN DOMENICO, FLORENCE
THE STONE-PAVED, VINE-COVERED LOGGIA AT SAN DOMENICO, FLORENCE
ENTRANCE DOOR TO THE LOGGIA AND GARDEN AT SAN DOMENICO, FLORENCE
Attention should be called to the interesting treatment of the stucco walls of the house itself. The surface has been broken up into geometrical panels by the use of stucco of different colors. This wall treatment, which is found in many of the villas of northern Italy, is an attractive and delightful way of relieving the monotony of broad, unbroken surfaces of stucco. The illustration on page 299 shows the use of these decorative panels. In this same illustration attention should be called to the unusual wrought iron hinges and lock plates, the boldness and the fantastic detail of which is characteristic of the late Baroque style.

The illustration, on page 294, of the corner of the garden formed by the tool house and the main building shows part of the wooden gateway of the tool house, as well as the beautiful wrought iron grille of the semi-circular arched window of the main house. The brick arch of this window is broken by a keyblock delicately carved. This touch of decoration is repeated below the window in the curious mask carved out of one of the foundation stones of the house to form a small fountain. This same illustration gives an excellent idea of the informal and picturesque quality of this old garden, in which hotbeds and potted trees break the regularity of the design. The cypress trees themselves give added interest in their irregularity of outline.

The charm of this old villa may be still further appreciated by the impression obtained from the illustration on page 298, in which the brilliant sunlight filtering through the dense foliage of the thickly massed vines of the loggia, flecking the rough flagstone floor with spots of light, truly portrays the atmosphere of the old Italy. The feeling of homelike informality and livableness of this compact little garden adds greatly to its charm. In plan it offers many suggestions which could be utilized effectively and successfully in a small modern garden. The uniformity and simplicity of the design, enclosed as it is within a nearly perfect square, is unusually practical. One purpose in publishing the plan and photographs of this delightful little garden at San Domenico is to present a design fundamentally adapted in size and character for use in American country homes being built today in the Italian style.

General View of the Garden at San Domenico, Florence
The abandonment of conformity to constructive principles, which was the decisive cause of the decay of Renaissance architecture in Italy, was due quite as much to the example set by Michaelangelo as to any other one cause. The qualities in his work which appear to have led architecture into the dark and devious ways of the Baroque decadence were first and chiefly its insincerity, in which may be included not only an absence of truthful construction and logical use but also the tendency to employ architectural forms as mere applied decoration. Under the conviction that so great a personality could do nothing wrong, every peculiarity or vulgarity of detail was carefully copied by those who came under the influence of his work. One of these followers and pupils of Michaelangelo was Galeazzo Alessi, who built many splendid palaces in Genoa during the early part of the sixteenth century, the doorways of which were excellent examples of the best period of the Baroque style.

Some of these doorways possess delicate and refined detail, handled with freedom and skill, showing classic orders used in new proportions and arrangements. Several of these doorways show the richly carved entablatures surmounted by broken pediments so characteristic of the Baroque style and the vigorously executed cartouches and scrolls expressive of the decadent spirit of the last days of the Italian Renaissance.
Architectural Library
DOORWAY, NO. 8 RESTIERE DEL MOLO, BANCO DI ROMA, GENOA

The Forum Studies of European Precedents; Plate 10
© The Architectural Forum

DOORWAY, PALAZZO CATALDI, NO. 4 VIA GARIBALDI, GENOA

The Forum Studies of European Precedents; Plate 11
PIAZZA DOORWAY, PALAZZO DORIA A FASSALO, GENOA

The Forum Studies of European Precedents; Plate 13
DOORWAY, PALAZZO SERRA, NO. 12 VIA GARIBALDI, GENOA

The Forum Studies of European Precedents; Plate 13
DOORWAY, PALAZZO PODESTA, NO. 7 VIA GARIBALDI, GENOA

The Forum Studies of European Precedents; Plate 14
DOORWAY, HOTEL VOGUE, DIJON

The Forum Studies of European Precedents; Plate 16
The Design of a Truss with Parallel Chords

By CHARLES L. SHEDD, C.E.

FROM some points of view, the truss is the structure which should be first studied by the student. Its use involves the fundamental principles determining the distribution of stresses in such a way that they appear more simple than in the case of the internal stresses of a beam or girder.

The most important principle of the distribution of stresses is that if we take any structure as a whole or if we cut out any portion of it, then the forces acting on such portion must always fulfill three conditions: First, the algebraic sum of all the vertical forces must equal zero. Second, the algebraic sum of all the horizontal forces must equal zero. Third, the algebraic sum of all the moments about any point must equal zero. If any of these conditions were not fulfilled, then the structure would not be in equilibrium; if the first were not true, then the structure would be moving in a vertical direction; if the second were not true, it would be moving in a horizontal direction; if the third were not true, it would be rotating. When we speak of horizontal and vertical forces we may not actually mean that, but rather we speak of all of the forces acting in a plane after they have been resolved into horizontal and vertical components. That is, we speak of these components. Furthermore, it may be convenient to consider these components as not acting at right angles to each other but in any two directions not parallel to each other. This principle is often regarded by the student as so simple that it would be absurd to think of a person’s not knowing it, but as a matter of fact it is neglected every day by engineers of long experience who understand its truth perfectly but who do not see its application to the problems before them. No problem in engineering should be attempted without bearing these three conditions constantly in mind.

In a truss we can see the direction which all of the interior forces take, and we can apply these three principles to different parts of it, dividing the truss into as many parts as we find convenient for the application of these principles. Fig. 1 shows a truss with parallel chords with the loads applied to it, also the graphical solution of the stresses in the various members. The truss has its top and bottom chords parallel and is composed of ten panels each 8 feet long. The depth of the truss is also 8 feet. The diagonal web members slope downward toward the center of the truss and are in tension. This is the usual arrangement for a steel truss, as it is more economical to have the longer web members in tension, while in a wooden truss the diagonals are reversed as the truss is more easily constructed to have the verticals in tension. A truss such as is shown in Fig. 1 is known as the “Pratt truss.”

The stress diagram is constructed in this manner. The spaces between the loads and between the various members are first lettered. The author uses capitals between the exterior forces and small letters between the various members. The loads are
Mem | Stress | T/C | Length | Section | Riv
---|---|---|---|---|---
Ba | 40.3 | C | 8 | 2-6"x3|1/2"x3/4" L1 | 6
Ce | 71.5 | C | 8 | 2-5"x4|1/2"x3/4" L1 | 10
De | 94.0 | C | 8 | 2-6"x4|1/2"x3/4" L1 | 13
Eg | 107.4 | C | 8 | 2-5"x3|1/2"x3/4" L1 | 15
Ff | 111.9 | C | 8 | 2-5"x3|1/2"x3/4" L1 | 15
Rh | 107.4 | T | 8 | 2-6"x4|1/2"x3/4" L1 | 13
Rd | 71.5 | T | 8 | 2-6"x4|1/2"x3/4" L1 | 10
Rf | 94.0 | T | 8 | 2-6"x4|1/2"x3/4" L1 | 13

3/4" rivets @ 7500 lb.  
1/2" gussets.

Fig. 2.—Arrangement of results of scaling stresses from the stress diagram and the design of the members themselves with the number of rivets required to take care of each stress
determined and also the reactions. If the loading were not symmetrical the reactions could be found in the same way as for a beam. (See THE FORUM for July, 1921.) The loads are laid out on a vertical line to some convenient scale, as shown in the stress diagram. Start with one force, such as the left-hand reaction, and take all of the exterior forces in order, passing around the truss in the direction taken by the hands of the clock. In this case only half of the forces are laid off, as the truss is symmetrical both in loading and in interior construction. The distance between the points R and A represents the amount of the reaction, the distance between A and B the load at the end of the truss, the distance between B and C the load at the next joint and so on. In the end panels there is no stress in the lower chord, and therefore there is no letter in the space directly above it, as this space is part of the R space. If all of the exterior forces were laid out, we would finally get back to the point R where we started, illustrating the principle that the algebraic sum of all the vertical forces must equal zero, as already described in this article.

If we apply this principle together with the second to each joint in turn, we may find all of the forces in the truss members. First take the end joint at the top of the truss. The forces acting on this joint are the reaction RA, the load AB, the stress in the top chord Ba, and the stress in the end diagonal aR. These must be in equilibrium. To show this graphically in our stress diagram we construct the line Ba parallel to the top chord of the truss and the diagonal from R parallel to the diagonal in the truss, and letter their point of intersection a. We can measure the distances on this stress diagram to the same scale we used in laying out the loads and find out how large these stresses are. In the same way we construct the rest of the stress diagram. To determine whether any stress is tension or compression, we may take a joint such as the second from the end in the lower chord and place the letters surrounding it in order reading around the joint in the direction of the movement of the hands of the clock, thus RhcdR. We can then read these same letters in the same order on the stress diagram, and the order we read them in shows the direction of the force toward or away from the joint. Toward the joint indicates compression, and away from the joint indicates tension. Thus be on the stress diagram is upward toward the left or away from the joint we are considering; therefore the member is in tension.

The method usually taught for laying out the stress diagram is to lay out the lines for all of the members, and if it closes in the end that is assumed as proof that the work has been correct. This is the best way for an unsymmetrical truss or for one with unsymmetrical loading, but for a truss with symmetrical loads like that used here and which is the usual kind encountered, it is not always safe, for the writer has known the same error to be made on each side of the truss, when it will still close and the error remain undiscovered. It is therefore recommended that the diagram be checked analytically, as will be described later, for the sake of safety.

The truss used here is taken as carrying a roof with wooden construction where the live load is 40 pounds per square foot and the dead load 30 pounds per square foot, making the total 70. It is taken as being an intermediate truss with another truss on either side of it, the trusses spaced 16 feet apart. The load at each of the intermediate panel points will therefore be 8,960 as indicated in Fig. 3. The reaction will be five times this load or 44,800 pounds. If we figure the maximum moment on the truss and divide by the effective depth of 8 feet we shall obtain the stress in the top chord at the center. This operation is shown in Fig. 3, where the stress is found to be 112,500. By scaling the stress diagram we get 111,900 for this stress. The difference between the two is 600 or a little over one-half of 1 per cent, which is near enough to make no practical difference in the design of the truss, and is therefore satisfactory.

In Fig. 2 we show the arrangement of the results of scaling the stresses from the stress diagram and the design of the members themselves with the number of rivets required to take care of each stress.

We must now examine the table, from which we choose the section for the various members. In most trusses, that is in all those where the stresses are not too large, we use for the section of each member two angles with the gusset plates connecting the various members between them. In the table we have arranged the various sections from which we are to choose our design after the principle first shown in the July, 1921, FORUM for beams. That is, we have arranged the possible sections in the order of their gross weight or area, which is in the order of their cost. Therefore, if we start at the top of...
any column and run down until we find a stress large enough, the section opposite that stress is the most economical to use. In the same way if all sizes are not available, the first one found which can be obtained and which is large enough is the most economical; also, if we are limited in width or in any other way, the first section which we find which satisfies all of the conditions which we have to meet is the most economical for the case for which we are designing. The table is designed for 3%" rivets, and the members having angles of unequal legs have the short legs out. This is usually the most economical. The gussets are assumed to be 3%" thick. If they are thicker, our design is on the safe side if anything. The allowable stress used for compression members is determined by the most common formula: $16,000-70 \frac{1}{r}$. The allowable stress on the tension members is the usual 16,000 pounds per square inch on the net section. In the first column are shown the various sections in the order already described. The table referred to in this paragraph is on pages 304 and 305. The next three columns are for the design of tension members, the heading for each column showing whether the area of one, two or three holes has been deducted for each angle. Usually the stress for the greatest number of holes shown in the table is that which should be used. In this table the 21/2" x 2" x 5/16" L is the minimum size used. 2 1/4" is the smallest leg in which a 3/4" rivet should be used, but a 2" leg can be used for the other leg. 5/16" is the thinnest material used by the writer. Some designers use 3/4" as a minimum. In legs 4" or less one rivet line only is used. When the outstanding leg is over 2", a small angle may be used fastened to this leg and riveted to the gusset to assist in transferring the stress. By using such angles two advantages are gained: the eccentricity of the rivets in relation to the center of gravity of the member is decreased, and the size of the gusset is decreased. Also, in large angles there are fewer rivets in a single row. This is desirable as the end rivets cannot get as much stress as those near the middle of the member, due to the slight stretch of the member between the rivets in a tension member or the compression in a compression member of a truss.

When such an angle is used the rivets in the outstanding leg should be staggered with those in the leg against the gusset, so that only one rivet need be deducted from the gross area of each angle. In 5", 6", or 7" legs two rivet lines are used. These are staggered with each other, but the line in the outstanding leg contains rivets opposite those in the other leg, so that two rivet holes must be deducted. If both legs are 5, 6, or 7 inches in width, two rivets, are still deducted, there being in all four rivet lines, alternately staggered. In an 8" leg there are usually three rivet lines, that in the middle staggered with the other two. If the other leg is 3 1/4", this line is made to contain rivets opposite the middle line in the 8" leg so that there are still two holes to be deducted. If the outstanding leg is 6" then it contains two rivet lines and three rivets must be deducted. If both legs are 8", then there are three rivet holes to be deducted. When the member is a top or bottom chord it is often inconvenient to use auxiliary angles, in which case fewer rivets need to be deducted; but due to these angles not being used, there is an eccentricity in the member which should be considered. Some designers have a rule of thumb for taking care of this eccentricity; some figure it while others neglect it. The last method cannot be excused except for small members, where it is known to increase the stress but a small per cent. In this article we will consider that auxiliary angles are used in all cases.

In Fig. 2 we have the member designated in the first column, while in the second column we have the stress which we have scaled from the stress diagram in thousands of pounds, that is the last two ciphers are omitted. The third column shows whether the member is in tension or compression. Some designers use + and —, but these are more

<table>
<thead>
<tr>
<th>P=70×8×16=8,960</th>
<th>R=5P=44,800</th>
<th>Chord</th>
<th>Stress</th>
<th>Bot. Chord</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,480</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40,320×8=322.0 Rb</td>
<td>40,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,960</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31,360×8=250.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,960</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22,400×8=179.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,960</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13,440×8=107.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,960</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>859.4×8=107.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8,960</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4,480×8=35.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fig. 3.—Arrangement of computations for computing the same truss with a slide rule.**

**Shear**

| 44.8 | AR | 2-4"×3"×3/16" L | 6 - Check 1 |
| 40.3 | ab | do          | 6 - $-70×16×80×80$. |
| 31.4 | ed | 2-3/16"×2/16"×3/16" L | 5 - 8 |
| 22.4 | ef | 2-3/16"×2/16"×3/16" L | 3 - $70×16×80×80$. |
| 13.4 | gh | do          | 2 - 8 |
| 9.0  | kl | do          | 2 - $70×16×80×80$. |

**Diagonals**

| 57.0 | Ra | 2-4×3"×3/16" L | 8 |
| 44.4 | bc | 2-3/16×2/16"×3/16" L | 6 |
| 31.6 | de | 2-3/16×2/16"×3/16" L | 5 |
| 18.9 | fg | do          | 3 |
| 6.4  | hk | do          | 2 |

<p>| Check 1 | $-70×16×80×80$. |
| 8       | $70×16×80×80$. |
| 112,5   | $70×16×80×80$. |</p>
<table>
<thead>
<tr>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>Span</th>
<th>Load</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>10'</td>
<td>8'</td>
<td>1/2&quot;</td>
<td>10'</td>
<td>50</td>
<td>200</td>
</tr>
<tr>
<td>12'</td>
<td>10'</td>
<td>1&quot;</td>
<td>12'</td>
<td>75</td>
<td>450</td>
</tr>
<tr>
<td>15'</td>
<td>15'</td>
<td>1.5&quot;</td>
<td>15'</td>
<td>100</td>
<td>675</td>
</tr>
<tr>
<td>20'</td>
<td>20'</td>
<td>2&quot;</td>
<td>20'</td>
<td>150</td>
<td>1125</td>
</tr>
<tr>
<td>25'</td>
<td>25'</td>
<td>2.5&quot;</td>
<td>25'</td>
<td>200</td>
<td>1750</td>
</tr>
<tr>
<td>30'</td>
<td>30'</td>
<td>3&quot;</td>
<td>30'</td>
<td>300</td>
<td>3375</td>
</tr>
<tr>
<td>35'</td>
<td>35'</td>
<td>3.5&quot;</td>
<td>35'</td>
<td>400</td>
<td>5000</td>
</tr>
<tr>
<td>40'</td>
<td>40'</td>
<td>4&quot;</td>
<td>40'</td>
<td>500</td>
<td>6625</td>
</tr>
</tbody>
</table>

*Note: The table above provides dimensions for various angles and lengths for architectural truss members.*
<table>
<thead>
<tr>
<th>2 b</th>
<th>3 b</th>
<th>5 b</th>
<th>8 b</th>
<th>10 b</th>
<th>15 b</th>
<th>20 b</th>
<th>25 b</th>
<th>30 b</th>
<th>35 b</th>
<th>40 b</th>
<th>45 b</th>
<th>50 b</th>
<th>60 b</th>
<th>75 b</th>
<th>100 b</th>
<th>150 b</th>
<th>200 b</th>
<th>300 b</th>
<th>500 b</th>
<th>1000 b</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
</tbody>
</table>
readily confused than T and C. The next column shows the length in feet for the compression members. Opposite the tension members the number of holes deducted could be placed. The next column shows the section chosen from the table, while the last column shows the number of rivets used. In this case we have used ½” gussets which give a value for each ¾” rivet of 7,500 pounds.

The general method used in choosing the sections has already been described. In the case of the top chord we give an alternative in the table. The 5” x 4” angles are the most economical, but they are not as commonly found in shops as the 6” x 3½” angles. In the case of Ra the 4” x 3½” angle is used in preference to the others of same area because the 4” x 3” angles are also used for several compression members where they are more economical. It is better for the shop to use as few different sizes as possible.

In Fig. 3 we show the method of arranging the computations if the same truss were computed with a slide rule instead of having its stresses determined graphically.

The reaction, as already noted, was 44,800. The load at the end AB is one-half of the usual panel load, that is, 4,480. If it is subtracted from the reaction it gives the shear in the end panel, and again deducting the next load we get the shear in the next panel and so on. By taking a section through each panel we cut three members, the stresses in which are unknown. We can apply the third principle given at the first of this article,—that the algebraic sum of the moments about any point must equal zero. If we choose as a point the intersection of the diagonal with one of the chords, we make the moments of these two unknowns equal to zero, therefore the moment of the other chord about this point must be equal to the moment of all of the other forces to one side of the section about this same point. In this way we can find the chord stresses. The simple way of finding the moments at the various panel points is shown in Fig. 3. The moment at any panel point is equal to the moment at the next panel point toward the nearest end plus the shear in the panel multiplied by the length of the panel. These moments divided by the effective depth of the truss, therefore, give the chord stresses. The stresses in the verticals are the shears in the section passing through the vertical but not cutting a diagonal. The stresses in the diagonals are equal to the shear in the panel multiplied by the length of the diagonal and divided by the effective depth. The chord stresses are all checked by checking the last one in the same way that the stress diagram was checked.

In making a detail drawing of the truss, the gauge line of the angles which have but a single gauge line is made to coincide with the stress line, and in the case of the angles having two or more gauge lines that nearest the outstanding leg is used. This leads to a slight but unimportant eccentricity, but, what is more important, it gives a simple detail for the shop, which is always to be considered unless stresses are caused enough larger than those computed to cause an important weakness in the design.

The gussets should be so designed that there will not be a weakness in shear. This is particularly liable to occur in the end gussets. By cutting the gusset with a section and applying our three fundamental rules, this shear may be easily obtained. This is usually the weakest through a line of rivets. When the ends of the diagonals are cut, either make a square cut, or if beveled have it bevel from the outstanding leg back toward the center of the truss. Never have the leg project to a point. This facilitates the cutting of the angle in the shop, a matter always to be considered.

In buildings where there are large halls, it sometimes becomes desirable to build a truss a whole story deep to carry the floors above. In this case the chords are frequently subjected to bending besides the usual truss stresses. In computing this bending it is not usually necessary to use as large a moment as would be computed by assuming the chord composed of beams each one panel in length. In general it is safe to consider these beams as continuous, that is, to take 8/12 of the moment as usually computed. There are, however, frequent exceptions to this rule which if overlooked would lead to dangerous design. One of these exceptions arises from large concentrated loads giving a bending stress which would be large in comparison with the direct truss stress, or more particularly a large bending in one panel and a much smaller bending in an adjacent panel. In such a case the difference in these two bending moments might be too great for the joint to take care of. Unless the end of the truss is very stiff it is usually best to figure the bending in the end panel as at least 8/10 of that of a simple beam. After the usual stress and bending stress have been computed they should be added together to see that they are not greater than should be allowed. It is safe, as a rule, to allow this combined stress to run up to 16,000 pounds per square inch, but care should be taken that there is sufficient lateral stiffness. A good section to use where the bending is considerable is two channels back to back with the gusset between them. Especial care should be taken in such design that the lateral stiffness is ample. A flange plate added on the top of the truss will often accomplish this result in as satisfactory a way as any. Wooden beams are not a good brace for steel compression members, but a concrete slab within certain limits may be very good. General rules which will fit all cases are very hard to make.
Details from the Library of the Hotel Gouthiere, Paris

Hidden away in unsuspected byways of Paris there still exist many old treasures of an architectural nature, left alone and deserted as the march of progress leads past them and on beyond. One such example is the old structure at No. 9 Rue Pierre Bullet, more fortunate by far than many an old Parisian house in having come into the possession of an owner who values it on account of its traditions as well as for its architectural merits. This old building, some illustrations and details of which were presented in The Architectural Forum for March, 1924, was built and occupied by the famous craftsman in metal of the time of Louis XVI, Pierre Gouthiere, and as it stands, surrounded by the shops and homes of small tradesmen, it might be regarded as a symbol of the downfall of French art when the splendor and dignity of the monarchy were swept away by the ruin and chaos which were the result of the revolution.

The grace and elegance and the charm altogether French which characterize the exterior of this old house are found to prevail within. Illustrations, details and a description have already been given of the vestibule or entrance hall and of a small salon, but equally as charming are the staircase hall with its marbleized walls and its graceful circular stairs and the adjoining rooms, one of which is the library of which illustrations and drawings are given here.

One's first impression of this room is that it is light and delicate in detail and exceedingly rich in color. The wood is of mahogany with a rich, reddish brown finish. The small engaged columns flanking the bookcases rest on a ledge of white marble which runs completely around the room, interrupted only by the openings. This marble ledge is moulded only where it slightly breaks around the columns and pilasters below. The room is a model of good taste in design, detail, balance and color.
Chamber of Commerce Building, Newark. Plates 77, 78. This 10-story office building, of which Guilbert & Betelle are architects, built in 1922 primarily to house the Chamber of Commerce, was planned to accommodate stores on the two lower floors and offices on the upper floors. The auditorium of the Chamber, which seats 320, together with committee, director's and secretary's rooms, is located on the third floor. The exterior of the building is buff brick with limestone trimmings and cornice on the upper stories. The richly carved entrance door, the work of Maxfield Keck, is in pink Tennessee marble. The construction is fireproof, with steel skeleton frame and concrete slab floors. Vacuum steam is used for the heating. The Public Service Company furnishes electric light and power. The electric elevators are finished in bronze. Hollow metal frames and sash are used for all the windows. The corridors have marble wainscots with plaster above, and terrazzo floors. The cost of this building was 68½ cents per cubic foot.

In design, the exterior facade is pleasantly divided. This is accomplished through the use of ornamental ironwork for the window treatment of the first two stories of the building, which are occupied by stores. In the center of this design of ornamental iron and brass, is the richly carved marble entrance door, which suggests the Renaissance of Spain and Italy.

HOUSE OF DR. HAROLD L. SPRINGER, Rockland, Del. Plates 79-80.—In this Colonial mansion Brown & Whiteside, Architects, have produced a design of unusual consistency and charm. Following examples found in Virginia, the plan shows a main house with two low buildings connected with the main house by arcades. A typical Colonial arrangement of rooms has been followed on the first floor, a hall extending through the house with stairway at one side, which rises above the main entrance. At the rear of this hall a door gives access to the broad covered porch designed in the style of that at Mt. Vernon. On one side a large living room opens onto an arcade which leads to a study in one of the small buildings. On the opposite side of the hall is a square dining room, with pantry and kitchen in the rear. Through the kitchen, which occupies the one-story arcade at this side of the first floor, access is had to the garage, the other small building. Four bedrooms and baths are located on the second floor, connecting by a service stairway with six maids' rooms and bath on the third floor. An unusually fine feeling for scale and proportion as well as accuracy in Colonial detail adds to the house's charm.

**Plate Description**

- Chamber of Commerce Building, Newark. Plates 77, 78. This 10-story office building, of which Guilbert & Betelle are architects, built in 1922 primarily to house the Chamber of Commerce, was planned to accommodate stores on the two lower floors and offices on the upper floors. The auditorium of the Chamber, which seats 320, together with committee, director's and secretary's rooms, is located on the third floor. The exterior of the building is buff brick with limestone trimmings and cornice on the upper stories. The richly carved entrance door, the work of Maxfield Keck, is in pink Tennessee marble. The construction is fireproof, with steel skeleton frame and concrete slab floors. Vacuum steam is used for the heating. The Public Service Company furnishes electric light and power. The electric elevators are finished in bronze. Hollow metal frames and sash are used for all the windows. The corridors have marble wainscots with plaster above, and terrazzo floors. The cost of this building was 68½ cents per cubic foot.

In design, the exterior facade is pleasantly divided. This is accomplished through the use of ornamental ironwork for the window treatment of the first two stories of the building, which are occupied by stores. In the center of this design of ornamental iron and brass, is the richly carved marble entrance door, which suggests the Renaissance of Spain and Italy.

- HOUSE OF DR. HAROLD L. SPRINGER, Rockland, Del. Plates 79-80.—In this Colonial mansion Brown & Whiteside, Architects, have produced a design of unusual consistency and charm. Following examples found in Virginia, the plan shows a main house with two low buildings connected with the main house by arcades. A typical Colonial arrangement of rooms has been followed on the first floor, a hall extending through the house with stairway at one side, which rises above the main entrance. At the rear of this hall a door gives access to the broad covered porch designed in the style of that at Mt. Vernon. On one side a large living room opens onto an arcade which leads to a study in one of the small buildings. On the opposite side of the hall is a square dining room, with pantry and kitchen in the rear. Through the kitchen, which occupies the one-story arcade at this side of the first floor, access is had to the garage, the other small building. Four bedrooms and baths are located on the second floor, connecting by a service stairway with six maids' rooms and bath on the third floor. An unusually fine feeling for scale and proportion as well as accuracy in Colonial detail adds to the house's charm.
EDITORIAL COMMENT

It is now nearly two years since announcement was made to the architectural and artistic world of the gift by Mr. and Mrs. Robert W. de Forest of a new wing for the Metropolitan Museum, in which were to be permanently housed the many examples of early American art, already collected by the Museum during the past 15 years. These collections, which comprise some of the best examples known of early American furniture, metalwork, ceramics, glass, textiles, wallpaper, portraits, and interior architectural woodwork, have now been so arranged as to re-create the atmosphere of typical interiors of the seventeenth and eighteenth centuries.

In collaboration with the Museum authorities, plans for the new American wing were prepared by Grosvenor Atterbury, Architect, in such a way as to make possible the installation of a number of old interiors taken from buildings in practically all of the 13 original states, showing the gradual development of American domestic architecture from Puritan days down through the Colonial and Revolutionary periods to the days of the early Republic. These rooms include examples of old kitchens, living rooms, dining rooms, drawing rooms and ballrooms, accurately rebuilt with practically all of the original details. Reproductions have been used only in some of the earliest rooms where it was impossible to remove the originals intact. Each room contains furniture, hangings, and various ornaments, decorations and details of equipment appropriate to its period. Space does not here permit a detailed description of each room, but we are glad to announce that a series of articles by Richard F. Bach of the Museum's staff, is shortly to appear in The Forum, and will take up in turn an analytical description of each of the periods of early American art and architecture, now splendidly represented.

The atmosphere and character as well as the purpose of the new American wing have been successfully established by the court or entrance facade of the building, for which has been used the gracefully proportioned front of the United States Assay building, erected a century ago at No. 15 Wall Street.

The opening of this new wing on November 10 was an event of importance in the history of American art. The influence of this notable collection of many of the finest examples of early American art will by no means be confined to the present generation; on the contrary it will stand forever as an enduring monument to the artistic appreciation and skilled craftsmanship of the men to whose struggles were due the solid foundations of the Commonwealth.
The Modern English Small House

For centuries the English have excelled in giving to their architecture a character which is definitely and unquestionably English. The genesis of their Gothic may have come from France and their Queen Anne may have been inspired if not imported from Holland, but when once appropriated a type was changed, modified and worked over until its character ceased to be French, Dutch or Italian and was essentially English. In no field have English architects and builders been more unfailingly successful than in that of domestic architecture, and to narrow the field still further, in their small house or cottage architecture. Indeed the English cottage has been famous ever since the annals of British architecture were first recorded, and in every age, from that of Shakespeare to the present, writers have written of the English hearthstone—not so much that of the castle as of the small manor, the farmhouse or the better class of cottages.

The "modern English style," or what is now being called; by that name, while borrowing from many architectural types cannot be said to belong to any. It makes use of many materials and indeed has been formulated with a view to using certain building materials of modern invention; its design is straightforward and its plan simple. It is quaint without being freakish, and picturesque in the best sense of the word without being exaggerated or affected. It is in fact homelike and appropriate, and being appropriate it might be said to be merely the present century's version of what was current in England during the era of Queen Elizabeth or the period of George III. It is representative of the present stage of an architecture which is in constant evolution. The type, indeed, well expresses the characteristics which have always distinguished English architecture—solidity, a considerable degree of dignity, reserve which sometimes approaches what seems to be reticence, and above all a clothing of utility with an attractive garb, which suggests one definition of architecture—"the art of building beautifully."

Into this volume there have been gathered illustrations, exterior and interior, of quite a number of houses of what in America we should call "moderate size," together with some smaller houses and a few which seem to definitely and unquestionably qualify as "bungalows," and among the names of architects whose work is illustrated are many of the foremost among English practitioners of domestic architecture. The houses are all of the modern English type and are fully representative of the breadth or range which the style affords, built of brick, stone, stucco on various bases, frame, and combinations of all these, while roofs are of materials such as would be used in America, with the addition of actual "thatch" which is entirely beyond our reach. The plans of the houses are simple and direct, as plans of modern English houses should be, and include in each instance rooms which while few in number are of fair sizes, all this being just about what obtains in the United States at present.

Illustrations of interiors are numerous and show arrangements of interior architecture and disposition of furniture and decorations which are pleasing and full of helpful suggestions without being widely different from what would be found in houses of like sizes and character in the suburbs of almost any American city. What is particularly admirable in the book is the number of illustrations and plans of gardens in connection with the houses, the houses and the gardens being so disposed that they sustain definite relations to each other, but this delightful detail of planning the English taught us long ago, and we have not been altogether backward in profiting by their excellent teaching. What someone has called "the Communism of Architecture" in America has brought into use motifs from many countries and of many periods, as a survey of our suburbs would show. Many of these types are appropriate for the frequent use which is being made of them, though few are more suitable than this type which has been evolved by present-day English architects as a setting for life much similar to what obtains in America.

The work upon the whole is an excellent presentation of an architectural type in which Americans are manifesting increasing interest and which is highly practical.

Any book reviewed may be obtained at published price from The Architectural Forum

For centuries the English have excelled in giving to their architecture a character which is definitely and unquestionably English. The genesis of their Gothic may have come from France and their Queen Anne may have been inspired if not imported from Holland, but when once appropriated a type was changed, modified and worked over until its character ceased to be French, Dutch or Italian and was essentially English. In no field have English architects and builders been more unfailingly successful than in that of domestic architecture, and to narrow the field still further, in their small house or cottage architecture. Indeed the English cottage has been famous ever since the annals of British architecture were first recorded, and in every age, from that of Shakespeare to the present, writers have written of the English hearthstone—not so much that of the castle as of the small manor, the farmhouse or the better class of cottages.

The "modern English style," or what is now being called; by that name, while borrowing from many architectural types cannot be said to belong to any. It makes use of many materials and indeed has been formulated with a view to using certain building materials of modern invention; its design is straightforward and its plan simple. It is quaint without being freakish, and picturesque in the best sense of the word without being exaggerated or affected. It is in fact homelike and appropriate, and being appropriate it might be said to be merely the present century's version of what was current in England during the era of Queen Elizabeth or the period of George III. It is representative of the present stage of an architecture which is in constant evolution. The type, indeed, well expresses the characteristics which have always distinguished English architecture—solidity, a considerable degree of dignity, reserve which sometimes approaches what seems to be reticence, and above all a clothing of utility with an attractive garb, which suggests one definition of architecture—"the art of building beautifully."

Into this volume there have been gathered illustrations, exterior and interior, of quite a number of houses of what in America we should call "moderate size," together with some smaller houses and a few which seem to definitely and unquestionably qualify as "bungalows," and among the names of architects whose work is illustrated are many of the foremost among English practitioners of domestic architecture. The houses are all of the modern English type and are fully representative of the breadth or range which the style affords, built of brick, stone, stucco on various bases, frame, and combinations of all these, while roofs are of materials such as would be used in America, with the addition of actual "thatch" which is entirely beyond our reach. The plans of the houses are simple and direct, as plans of modern English houses should be, and include in each instance rooms which while few in number are of fair sizes, all this being just about what obtains in the United States at present.

Illustrations of interiors are numerous and show arrangements of interior architecture and disposition of furniture and decorations which are pleasing and full of helpful suggestions without being widely different from what would be found in houses of like sizes and character in the suburbs of almost any American city. What is particularly admirable in the book is the number of illustrations and plans of gardens in connection with the houses, the houses and the gardens being so disposed that they sustain definite relations to each other, but this delightful detail of planning the English taught us long ago, and we have not been altogether backward in profiting by their excellent teaching. What someone has called "the Communism of Architecture" in America has brought into use motifs from many countries and of many periods, as a survey of our suburbs would show. Many of these types are appropriate for the frequent use which is being made of them, though few are more suitable than this type which has been evolved by present-day English architects as a setting for life much similar to what obtains in America.

The work upon the whole is an excellent presentation of an architectural type in which Americans are manifesting increasing interest and which is highly practical.

Any book reviewed may be obtained at published price from The Architectural Forum
Character in any building is largely dependent upon the design of its interior architecture and the handling of its decorations. The growing importance of this part of an architect’s practice warrants close study of interior design and decoration with which these works deal.

The interest in English furniture which is increasing each year is accompanied by the publication of many works which deal with the subject from such varied and differing points of view as that of the antiquarian, the dealer, the architect or interior decorator, and the collector. It is true that whatever be one’s direct interest in the subject, study of English furniture involves the consideration of much the same subject matter—the following of one of the great historic periods of furniture-making closely upon the heels of another, the varying forms and different woods used, and the relations which the furniture of the various periods sustained to the interior architecture of the houses themselves and to the customs of the people who lived in them.

Many of the works published to aid in studying English furniture are given up so largely to discussing matters which while interesting themselves do not relate directly to the subject that their value to the furniture student is rather lessened, and almost all these volumes, owing to their sizes and to the luxurious form in which they are brought out, are likely to be beyond the reach of the very students who would profit most by possessing them.

This volume is of a character which will interest classes as varied as students, collectors, architects or decorators, and practical cabinet makers, particularly designers and draftsmen engaged on working drawings for the reproducing of old furniture. The excellence of the illustrations should be of inestimable value in avoiding the false note which is so frequently struck, to the complete ruin of so much work of this type today.

The story of English furniture has been frequently and ably told and illustrated, but extremely little has been presented upon the practical side; yet questions of material and construction are valuable to the collector and even more valuable to the workman who is reproducing old English furniture, the neglect of subtle but important details often being responsible for the lack of character or feeling which these reproductions so frequently display. We do not know of many works on this subject where so much of value is given in small compass. Excellent half-tone illustrations accompany exceedingly well written text, but by far the most valuable detail is the drawings, of which there are a great number, illustrating such important details as the various forms of the cabriole leg; stretchers of chairs, tables and other pieces; cornices and profiles on tables, secretaries and wall pieces of different kinds, and numerous drawings of such items as dove-tailing, tripod tables and stands, drawer construction and turned spindles.


This valuable volume might be best described by saying that it is a companion and sequel to the well known work by the same author on “History of Ornament, Ancient and Mediaeval.” This later work follows much the same general plan as the earlier volume, but it discusses the motifs and the style of ornament as they have been developed in Europe and America during the modern period, and as Mr. Hamlin observes in the preface, not with the work of civilizations long dead but with work of our own times or at least of a period of which our own time is the child and direct heir. The age of the Renaissance is a period from which we are separated in time rather than in character, culture and sympathy. We fall naturally into ways of thinking and ways of designing taught us by the whole movement of the Renaissance, and the ornament of that age is therefore full of suggestion, inspiration and example for present-day use.

Planning the work in some 15 chapters, the author discusses under each heading the ornament which is identified with that period, ornament of every description, not only what is strictly architectural, but also what is applicable to furniture, fabrics, pottery of many different kinds, glass, metalwork and almost everything else for which ornament could well be used. Illustrations, which are numerous, have been selected with great taste and care, and since many are in full color the student of design obtains some idea of the importance of the use of color as applied to ornament. Even the comparatively recent art movements receive due recognition in the discussion of ornament, considerable attention being given to the development in different European countries of the “art nouveau” movement and the more recent revival of interest in America of the late Georgian type of ornament which is so much used today.

THE BOOKPLATE ANNUAL FOR 1924. Edited by Alfred Fowler. 58 pp., 9 ½ x 12 ½ ins. Price $5. Alfred Fowler, Board of Trade Building, Kansas City.

A BOOKPLATE frequently possesses a value as an excellent example of some form of graphic art as well as a utilitarian value in establishing the ownership of a book. The several centuries during which ex libris labels have been in vogue have seen the use of vast numbers of bookplates, interesting as being indicative of the pursuits, tastes and hobbies of their owners, and affording opportunity of expression which is not always given even in the selection of the volumes which the labels adorn. Many of the most interesting bookplates have always been those of architects, and an interesting study might be made of architects’ bookplates alone.

Collectors of bookplates are more numerous than might be supposed, and in addition to various periodicals which cater to the interests of collectors there appears each year The Bookplate Annual, the volume for 1924 having just been issued. Replete with reproductions of bookplates of various types, the Annual contains an essay by Gardner Teall on “The Art of Sidney L. Smith,” a number of whose bookplates are shown, and articles entitled “Bookplates as Works of Art,” by Ralph M. Pearson; “Sidney Hunt’s Bookplates,” by James Guthrie; an illustrated catalog of the Ninth Annual Exhibition of Contemporary Bookplates; a new and enlarged Directory of Bookplate Artists, and a revised Exchange List of Bookplate Collectors. The volume possesses an interest which is manifold, for in addition to the presentation of countless designs of bookplates it affords suggestions which might well lead to the production of many more, and the volume is beautifully printed and bound and made in an interesting form.

Any book reviewed may be obtained at published price from The Architectural Forum.

STUDENTS of design find that a great part of the subject matter with which their researches have to do is supplied by textiles of different kinds. The nations of ancient and medieval times, with all their pomp and splendor, developed many arts and crafts in which design played an important part, but perhaps none of these arts was so indissolubly bound up with the industrial, civic and religious life of the people as the art of weaving, which in its different forms supplied hangings for the interior, fabrics for countless other domestic uses, and material for apparel, not only during life but also for clothing for burial of the bodies of the dead. The very extent to which weaving entered into the lives of all peoples, ancient or modern, is doubtless the cause of the existence after many centuries of textiles of various kinds, in making which the matter of ornament or design was of great importance. Thus along with the weaving of the simplest of linen or cotton cloths there went the making of the famous Mosul fabric, sometimes called "woven air," the famed woolen shawls of Cashmere, the magnificent cloth of gold from Bagdad, and the sumptuous velvets of Venice, Florence and Genoa.

Since the world as a whole has grown quieter, more gray and subdued than in the glorious days when these resplendent fabrics were in frequent use, the textiles, such as still exist, have been garnered for the most part into the collections of great museums, where in addition to being safe, they aid in promoting the study of design.

This volume discusses the study of textile design of periods both ancient and modern, and since the subject by reason of its very nature depends very largely upon illustration in order to be understood, the illustrations are as complete and as lavish as could be wished. The author's treatment of the design used in western Europe is extremely well done, and the medieval and Renaissance fabrics of Italy, France and England have made the subjects of full and helpful chapters, with a particular study of the textiles of Spain, into the design of which there entered so much Moorish influence. An important part of this valuable volume on textile design is that devoted to fabrics in which the ornament is not produced while the textile is being woven upon a loom but by printing upon a fabric already woven. Since the topic being discussed is design, and since design is to some extent at least independent of processes, Mr. Glazier writes of the design of the printed cloths of the East, and the printed fabrics of various kinds developed in Europe and indeed still being made today.

Knowledge of design is not likely to be easily or quickly acquired. It presupposes considerable study and training in the various arts of which design is so fundamental a part, but a student not only of textiles but of any of the liberal arts would be greatly benefited by careful study of this important work. The illustrations are for the most part of fabrics which to most students would be inaccessible, and the cuts themselves are of a character which bring out the delicacy of the detail, a number of the more important being in full color. A really valuable and excellent work which deserves careful study at the hands of all students of design.

Cottages, Farmhouses and Other Minor Buildings
In England of the 16th, 17th and 18th Centuries
By LOUIS CONRAD ROSENBERG

Of all the architectural types, that most appropriate for American domestic use is often thought to be that of the old English cottage or farmhouse. It can be easily developed in materials of almost every kind; it possesses wide flexibility as to scale, and the character of its fenestration provides the ample wall spaces which many designers highly value for their architectural effect. Its interior is readily developed to provide the rambling type of plan which is popular for country or suburban domestic buildings, and all in all, the English farmhouse or cottage answers every demand made by the modern home builder in the search for a practical type. 102 pages, 10 x 13 7/8 inches. Bound in cloth. Price $1.50.

There are also given countless detailed working drawings of doorways; oriel windows; gables; chimneys, singly or grouped in stacks; decorated plaster; half-timber work; fireplaces and cornices. A book invaluable to the architect.

ROGERS & MANSON COMPANY - - 383 Madison Avenue, New York

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM.
Old English Walnut and Lacquer

During the progress of the English Renaissance, as one style of architecture came into vogue and triumphed for a time before being followed by another, the furniture was passing through similar stages of evolution, so that at any time the accessories which went into an interior were designed and built with a view to making the most of the interior's advantages, while the interior itself was designed to create an attractive setting for furnishings, the result being that rare harmony which many architects are striving to achieve today. The furniture during that long period was made of different woods; oak, for example, being plentiful in England, was in constant use up to the time of the Restoration, when the returning Stuarts set the fashion for the walnut to which they had been accustomed in France and Holland and which held its vogue until it in turn was supplanted by mahogany early during the Georgian era which followed.

This volume, by the author of the well known work "The Present State of Old English Furniture," is a review of the walnut period, dealing also with the lacquer which was fashionable for furniture at a time which was about that of the beginning of the walnut age. The period was one when England had been absorbing for a century or more the ideas in architecture and decoration which had reached the island from several European countries and which had been sorted, sifted, and generally assimilated into what pleased the English temperament, and walnut with its fine, rich grain and smooth surface, and particularly with the ease with which it could be given a beautiful finish, was found to be well adapted to the needs of furniture makers. During the walnut age there were made many of the masterpieces of furniture which are in existence even yet, each year adding something to the mellow brown or gold of their patina.

The large scale of domestic interiors of this period led to a demand for pieces of furniture which were of vigorous sizes. A favorite piece was the "bureau-bookcase," and another was the "bureau-writing cabinet," either piece being a writing desk topped by a superstructure which frequently possessed pilasters and a fully developed entablature and some sort of a pediment, generally broken or scrolled. Another piece of furniture sufficiently massive and decorative to hold its own in rooms which were fairly large scaled was the chest of drawers mounted upon legs, this as well as the aforesaid "bureau" being of walnut which was richly figured, usually being made of veneer to produce the effect of "matched" panels in drawer fronts or large surfaces, and often adorned with mounts of gilded metal or else with gilding applied directly to the wood. One more use for walnut was in affording a ground for marquetry of woods in different colors, an art in which the craftsmen of this age excelled, producing work of marvelous fineness and beauty, particularly in the tall clocks which have never been as beautiful as during the later Stuart period in England.

The vogue for lacquer acquired a firm foothold in England about 1660 and lasted for approximately 75 years. During the reign of Elizabeth products from the Orient were at least known, and both the Dutch and the English East India Companies were formed. France and Holland were also interested in the use of things Oriental, and on the accession of Charles II this craze spread to England where it was fostered by the court. Lacquer was at first used chiefly for "bureau-bookcases" and other bulky pieces, but later it was used upon furniture of all kinds and even on pieces of walnut, and later still the wainscoting of rooms was lacquered. So general became the use of lacquer that the process was successfully imitated by English workmen, their process being called "Japanning"; thus in time furniture of all kinds and even wainscots were being "Japanned."

As in his other works, Mr. Symonds writes with the point of view of collectors and connoisseurs in mind, and he gives considerable data which concerns the "quality" or the "state" of a piece, its general character, grain, patina, and the other points which determine its desirability. He dwells, too, as he always does, upon an exposure of the tricks and wiles practiced by those who would trade upon the gullibility of collectors by the manufacture and sale of bogus antiques—which, to be sure, are often nearly as beautiful as the genuine pieces. Few people object to the use of reproductions which are frankly sold as such, but often success in simulating age leads to palming off reproductions as real antiques.


Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM.
EARLY settlers in Virginia carved from virgin forest a land which as nearly as possible was a miniature England. Named in honor of a virgin queen, Virginia was not settled by the lowly of the earth. Scions of old families, each with its pride of birth and coat of arms, preempted the waterfronts of the James and the Potomac, and presently there began to assume form the old country houses which still survive the vicissitudes of centuries. Now to make a garden is in the English blood, and there was no old house along the James which did not possess its garden, laid out in the formal and precise manner of the seventeenth century, or the eighteenth, its gay parterres edged about with box borders or hedges, and with a riot of color supplied by many of the plants which had flourished in English gardens together with some native to America. It is not difficult to picture these old gardens at the height of their splendor when the Virginian ladies and gentlemen in their silks and laces strolled up and down their shaded lanes or alleys.

Into this beautiful volume there are gathered illustrations, plans and descriptions of many of the gardens which form parts of these historic estates. Compiled by members of a Garden Club, each of these old plantation or country houses has been dealt with by someone particularly well fitted to write regarding it. Being a work on gardens, the volume is essentially a garden book, but so intimately is a garden related to its surroundings that views, plans and descriptions of the gardens include also those of the houses to which they belong, and in this day when gardens and gardening are regarded with new interest by owners of countless country places large or small all over the land, this volume on the fine old gardens of Virginia will aid in the planning and building of new gardens, which perhaps is one of the aims of its authors. In addition to being written in a vein which is highly attractive, the volume is produced in excellent form and distinguished by many illustrations in color of gardens which are notable.


In the building up of an architect's library attention must be paid to a number of different departments. Design, construction, ornament, furniture and interior decoration, and the history of architecture are all important, and so too is the field of biography, the history of individual architects or perhaps of architectural firms, which naturally involves some study of their work and their influence both as individuals and as architects upon their times. The field of biography has perhaps been neglected in behalf of other kinds of architectural publishing which have seemed to have more immediate interest or more direct appeal, but there are both interest and importance in whatever aids in securing that "background" which is so important to the proper appreciation of architecture to both the layman and the architect. The profession, in its present sense, is of no great age, for during many centuries knowledge of architecture was part of the equipment of a master builder—or perhaps, differently put, master building was one of the functions of an architect. At any rate, the names of but few great architects have survived up to the time of say Inigo Jones, and we search almost in vain for the names of the architects of the Gothic cathedrals. When a name is found, it is more than likely to be that of some ecclesiastic—some prince-bishop, whose enthusiasm led to his projecting building operations on a great scale in which he himself perhaps functioned ostensibly as architect and presided over a staff of workmen and craftsmen who did his bidding. The function of an architect, in the present meaning of the term, is therefore comparatively modern.

The volumes listed here constitute the beginning of what is intended to be a series of monographs or little biographies of men or firms of such importance that their names are written in large letters in the history of architecture. The volumes are extremely well illustrated.

Mohammedan Architecture and Ornament

STUDENTS of architecture and architectural history who look for a distinctly Mohammedan religious style will be disappointed; it would be as logical to search for a distinctly Christian type, for just as Christianity in its progress during centuries and in different countries developed many architectural styles, Islam influenced when it did not develop types which were different in northern Africa, India, Spain, Syria, and Egypt, the divergence in architecture resulting from differences in characteristics of the older civilizations upon which the newer culture was grafted or established.

Nevertheless, in the structures which Islam reared in various parts of the world there are to be found certain characteristics which symbolize a common religious faith, sufficient to mark almost anywhere a building in which Mohammedan worship is conducted. Broadly speaking, Mohammedan architecture might be described as an adaptation of the Byzantine—an Asiatic form of the late Roman style adapted to Christian uses. The oriental strain in its composition would naturally make it readily adaptable by Moslems when they came to face problems of design, and with the Turkish conquest of Syria and Egypt such buildings as the Takiyyah at Damascus were based on the model of certain churches at Constantinople. Among the details of Mohammedan architecture which may be attributed to a Byzantine origin are: certain forms of vaulting; arcades supported upon columns; dossiers; wooden tie-beams across arches; carved beams in carpentry; mosaic; marble linings and dados; bronze furniture and window fittings; windows of pierced or reticulated marble, and the use of alternating stripes of red and white, yellow or black in facades and sometimes in the voussoirs of arches.

Instead of a rich liturgical worship, such as was developed in the Christian Churches of East and West, Moslem worship is simplicity itself and offers but small opportunity for the employment of the splendid accessories which add so greatly to the interest of Christian churches. Worship consists chiefly of public prayer to which worshipers are summoned by the muezzin from the mosque’s minaret, while within little is required beyond an area unobstructed and sufficiently large to accommodate a great body of worshipers, who kneel on the floor. Liturgical arrangements do not exist excepting a niche (mihrab) indicating the direction toward Mecca, the Holy City, and a pulpit (minbar), which in some of the later mosques frequently resembles the ambos of certain old churches in Italy.

For the most part Mohammedan domestic building is of less importance than that of the mosques. The temperatures which prevail in most Mohammedan countries render it necessary that the houses be built with thick walls to exclude the heat, around courtyards, and with wooden lattices or carved grilles over the oriel windows, thus giving the interiors a certain grateful shade without entirely excluding the air. The plan of the house is today practically what it was centuries ago.

In this volume Mr. Briggs considers Mohammedan architecture as it has been developed in Egypt and Palestine, in both countries, grafted upon an earlier architecture of which many characteristics persist. Even richer than its architecture is the Mohammedan craftsmanship in myriad forms. Reference has already been made to the wooden screens or lattices which cover the windows of Mohammedan homes and form so striking a detail in the appearance of a street in a city or village of the East, and other ways in which carved wood is used are in doors, panels for many purposes, friezes, ceilings, and for inlays of different woods or of wood in connection with mother of pearl or other substances. Much use is made of metalwork of many sorts for countless purposes. Use of glass includes the enameling which is done upon mosque lamps and other objects as well as the use of colored glass for windows of a type strongly oriental, and different from that used in the West.

BUILDING CONSTRUCTION BOOKS

A GROUP OF RECENT PUBLICATIONS THAT PRESENT IN CONCISE FORM THE LATEST DATA ON CONSTRUCTION PROBLEMS; PREPARED BY AUTHORITATIVE ENGINEERS

Concrete Engineer’s Handbook

By GEORGE A. HOOl,
Professor of Structural Engineering, University of Wisconsin
and NATHAN C. JOHNSON,
Consulting Engineer

In its more than 800 pages this book gives the entire data of practical concrete construction. It is a concise encyclopedia of modern plain and reinforced concrete practice—a working manual for the concrete engineer. It contains numerous tables and diagrams and much important information never before published in book form. A special chapter deals with estimating costs. It is an all-inclusive book that deserves the title, “The big book on concrete.”

885 pages, 6 x 9, flexible binding, fully illustrated

Price $6

Concrete Designers’ Manual

By GEORGE A. HOOl,
Professor of Structural Engineering, University of Wisconsin
and CHARLES S. WHITNEY,
Consulting Engineer

A valuable collection of tables and diagrams prepared by the authors in their practice for the design of reinforced concrete structures. They are in accordance with the Joint Committee regulations, the American Concrete Institute recommendations and the building code requirements of New York and Chicago. No attempt is made to develop theory; the text is limited to explanations of the tables, and where necessary specific examples of how to use them. A great timesaver for engineer or architect.

276 pages, 6 x 9, flexible binding, 66 diagrams, 54 tables

Price $4

Handbook of Building Construction

GEORGE A. HOOl and NATHAN C. JOHNSON
Editors-in-Chief, assisted by 46 specialists

Nearly fifty specialists collaborated to produce this great two-volume handbook on modern building design and construction. The records, the experience, the methods of big engineering companies and leading construction engineers have been incorporated in it. It is a digest of the best approved practice of modern building construction.

1474 pages, 6 x 9, flexible binding, fully illustrated

Price $10 per set

Concrete Construction for Architects

By DeWITT CLINTON POND

This book, written by the author of “Engineering for Architects,” has been prepared with the needs of architects especially in mind. It takes up the various stages of concrete design in concise chapters, beginning with an explanation of moments and reactions and shear and bending diagrams. The treatment of the subject is simplified by connection with definite problems, the solutions of which are indicated in detail.

204 pages, 6 x 9, cloth binding, fully illustrated

Price $4

Practical Structural Design

By ERNEST McCULLOUGH, C.E.

A practical textbook on the designing of structures, written in simple, non-technical language that enables the student to grasp the usual engineering problems involved in building with a minimum expenditure of time. It covers the essentials of the subject as related to wood and steel framing. Prepared by an engineer of wide experience in teaching.

317 pages, 5 3/4 x 8 1/2 ins.

Price $3

These books or any selection of them will be promptly forwarded, carrying charges prepaid, upon receipt of price

ROGERS AND MANSON COMPANY
ARCHITECTURAL PUBLISHERS

383 MADISON AVE.
NEW YORK
CONSTANT changes in costs of building materials and of the labor which enters into building construction, as well as the high costs of these commodities, place heavy responsibilities upon those in charge of the preparation of estimates. There are many instances on record where some apparently trivial error, some oversight seemingly small, has caused a heavy loss to a contractor whose bid was accepted, possibly by reason of a low price resulting from the error in question. Just because of the constant changes in prices it is useless to govern one’s estimates by what may have been the cost of a building a year or so ago or even a month or two before; and since estimates must always be prepared quickly there is of course every opportunity for the making of troublesome mistakes. Much the same is true when it comes to giving figures on “appraisals.” The work of insurance adjusters, real estate dealers, etc., involves much estimating of the values of buildings of various kinds, and since there are frequently large interests involved, it is quite as important to be as accurate in giving estimates in appraisals as upon new work.

This volume, prepared by the Supervising Building Valuation Engineer, New York Central Lines, deals with the subject in a way which is calculated to help the building contractor, estimator or appraiser dealing with structures of different types. Its use will, of course, render unnecessary the care which an estimator or appraiser should exercise, but it extends many helps by giving data in forms which are quickly and easily referred to. Tables give the actual present-day construction costs of numerous types of buildings built between 1890 and 1923, and show the percentages of increase in building costs for the entire period. A contractor often knows the actual cost of some structure which is similar to that for which he may be preparing a bid but which may have been built some years before when prices were quite different. It is easy, however, by using these tables, to make a comparison of the costs of the two projects.

The 29 chapter headings deal with every department of estimating, and they are so complete that by glancing over the sub-headings of the chapters the estimator would be almost certain to avoid making any important error.


In the second volume of this excellent work there are covered the middle of the Renaissance period and its later development in the countries of continental Europe, while the consideration of England, into which the Renaissance was late in penetrating, includes the period of transition from the Gothic into the Renaissance. In the earlier volume the subject matter was discussed according to eras, such as the Hellenic, Roman, Byzantine or Gothic, while in this volume each of the parts or chapters deals with a single country. As in Volume I, the author deals with architecture as well as painting and sculpture, and from his viewpoint the discussion of architecture has an interest which does not always attach to that of a writer whose work gives little consideration to other arts with which architecture is so intimately related. The treatment of the Renaissance in Spain is particularly good, especially the pages which discuss the Plateresque and the Rococo as made popular by Churriguera.

In the supplementary chapters devoted to the arts of the Far East, Mr. Stewart Dick, one of the official lecturers at the National Gallery, considers sculpture and painting as they were developed in India, China and Japan. These arts were influenced in their earlier stages by contact with the West, but they had during centuries of evolution an existence which was wholly independent; giving opportunity for following their own ideals, developing their own methods of technique, and building up their own body of traditions. A great part of Oriental art centers in Buddhism, which beginning in India traveled eastward into China, Korea and Japan. Few of the roads which the student of art history must travel are more difficult and devious than that which leads to an intelligent grasp upon the meaning of Eastern art, involving as it does foundation upon an abstruse religious symbolism which is unfamiliar and development by forms of technique which differ widely from those of Europe, besides being governed by canons of taste which are in themselves puzzling to Europeans or Americans. Oriental art involves considerable adherence to established conventions which persist through all the ages of painting and sculpture and which would seem to exclude all the wealth of development which these arts received at the hands of individual painters and sculptors in Europe. The art of the Far East like its civilization reared upon a foundation different by far from that which supports art and civilization in the West, and those who would fully comprehend either have need of all the aid which writers and students extend. Study of Eastern art requires close application.

This volume, like Volume I, is lavishly illustrated with half-tones of buildings, paintings or works of sculpture which have been selected with excellent taste to illustrate and to add interest to the authors’ text.


A not many, but New Orleans would undoubtedly be included in the number, others named probably being Baltimore, Boston and Montreal. Attention is sometimes drawn to the fact that American cities are rapidly being “standardized” to the point where they look alike, and as the march of progress continues and landmarks make way for skyscrapers of monotonous similarity any charm which a city may possess, particularly the charm of architectural character, is likely to disappear. This appears to be true of New Orleans, and one who knew the “Crescent City” in say the 70s or even the 80s of the last century would miss the stately St. Charles or the St. Louis Hotel which was also known as the “Hotel Royal,” not to mention countless old buildings reminiscent of the French and Spanish periods in which New Orleans was once so passing rich.

But it seems that in at least one part of New Orleans the charm of other days lingers on, and in this little city...
The French Quarter of New Orleans—the Vieux Carre which once constituted the walled city of Nouvelle Orleans—is but ten short blocks in length, from Canal Street to Esplanade Avenue, and its width, from the river to Rampart Street, is but six scant squares. Once it was a French settlement, built of wood and consisting of small one-story houses set within gardens and screened from the narrow streets by high whitewashed picket fences. In 1788, only a few years after the town had passed from the French to the Spanish domination, it was destroyed by fire. Only a few houses escaped. When it was rebuilt, Spanish architects and builders played their part in its reconstruction. The city which rose from its ashes was of brick and plaster, with arches of heavy masonry. There were barred windows and long, dark corridors. Large, fan-shaped windows looked down into courtyards which held banana trees, oleanders and parterres of flowers. Houses were built flush with the sidewalk, or banquettes, as they were called, and balconies of delicate wrought iron overhung the streets. Social and business life centered around the Place d'Armes, now called Jackson Square. It was in the square that the transfers of Louisiana from Spain to France and from France to the United States took place, and in the houses and streets nearby occurred the events which made the history of New Orleans so colorful, so bizarre and so charmingly unusual.

Even as we see it today, in its dying splendor, the Vieux Carre is the old Creole city of other days; it has a charm, a romance, a definite personality. Architects from distant cities come to New Orleans to study these old houses and to note the details of their construction, and each and every one of them finds something to interest him. One admires the wrought iron of the balconies, which cling to the mouldering walls like strips of old black lace; others study the oddly shaped windows, the heavy doors, or winding stairways.

Those who know the French Quarter will be interested in these sketches by William P. Spratling, instructor in architecture in Tulane University, for they are not only faithful records of out of the way places, but they have a decorative value of their own. Mr. Spratling understands the spirit of the old New Orleans, and he has expressed it in these pencil drawings.


This work is the publication in book form of the chapters by Mr. Sullivan which have already appeared in the Journal of the American Institute of Architects. The book might be called a volume of memoirs or reminiscences, and it presents in a permanent form their author's well known views on a number of subjects connected with architecture. Many architects will of course dissent in toto from Mr. Sullivan's teachings, while those who agree will presumably require no further strengthening of their faith.

Cottages, Farmhouses and Other Minor Buildings

In England of the 16th, 17th and 18th Centuries

By Louis Conrad Rosenberg

Of all the architectural types, that most appropriate for American domestic use is often thought to be that of the old English cottage or farmhouse. It can be easily developed in materials of almost every kind; it possesses wide flexibility as to scale, and the character of its fenestration provides the ample wall spaces which many designers highly value for their architectural effect. Its interior is readily developed to provide the rambling type of plan which is popular for country or suburban domestic buildings, and all in all, the English farmhouse or cottage answers every demand made by the modern home builder in the search for a practical type.

102 pages, 10 x 13½ inches. Bound in cloth. Price $15.

Rogers & Manson Company

383 Madison Avenue, New York

Any book reviewed may be obtained at published price from The Architectural Forum.
Some Old Domestic Architecture of Holland

There are not many countries which possess an architecture as strongly individual as that which makes so interesting to the architect the tiny corner of the earth which we know as Holland. Like that of every country, Dutch architecture has been much influenced by developments elsewhere and by the borrowing and adapting which went on for centuries—and which still goes on—in different countries of Europe. To the architectural riches which during the middle ages were piled up in the region which now includes Belgium, Holland and northeastern France there was added the achievement of the Renaissance, and particularly in Holland architecture and decoration were deeply influenced by the Baroque movement, passing the Baroque on to England when, during the reigns of William and Mary and Queen Anne, Dutch forms came into vogue in English homes.

Dutch building is largely of brick. The country, reclaimed for the most part from the sea, possesses no deposits of stone, and what little is used for trimmings and for monumental building must perforce be brought from France, Belgium or Germany; of forests to produce lumber there are almost none, but from the clays of Holland there are fashioned excellent brick of a richly varied range of colors, and the Dutch builders acquired centuries ago the skill in the use of brick which by reason of different bonds and unusual methods of laying brick resulted in the fine brickwork of Holland. In Dutch architecture, therefore, there is richness achieved by use of the simplest materials; small indeed is the use of costly stone and smaller still that of more costly marble, but with brick of astonishing color values used with supreme skill and discrimination, the Dutch have created marvelous buildings, the interiors of which are rich and distinguished,—and these interiors too are secured by the simplest of materials, used with skill.

In this excellent volume Mr. Slothouwer, one of the most eminent of present-day Dutch architects, introduces a marvelous view of some of the examples of the old architecture of Holland which have been spared. Travelers think of Holland as being a land of dykes, windmills and canals, the canals, particularly in the towns, being conspicuously in evidence. Upon them front those wonderful old houses, often of exaggerated narrowness and height, with their frankly and gaily Baroque facades, or else gravely and austere reserved with the "stepped" gables which one always associates with Holland. An old Dutch town, in fact, seems to be made up almost wholly of facades, for in a country so tiny space is necessarily precious, and the old cities were laid out with thrifty economy of land so that the great number of buildings placed in solid rows give to a Dutch town the appearance of being all shop facades or house fronts.

But how strong and varied was the character which the old Dutch builders could secure with the simplest of means and within the smallest limits! Even the byways of old Dutch towns possess their share of beauty, and the older houses of what we like to call the "working classes" present an appearance of dignity and vitality which is amazing. An area even smaller than would be taken up by the home of a mill operative in the dreary factory districts of Philadelphia could be turned by an old Dutch builder to excellent account; one might feel sure that behind its pleasantly dignified facade there would exist a tiny garden, and even had the custom of the time demanded a "front porch" upon which the family could be exhibited, the old builder would have managed it somehow. Whether modern Dutch architecture is maintaining the character of the old is a question which admits of considerable difference of opinion. One fears that it isn't!

And then the heightened charm of the old Dutch interiors! No wonder the old painters made them the subjects of their masterpieces! Visions come to mind of open timbered ceilings, leaded glass in windows of exaggerated height, furniture heavy and massive without lacking a certain grace, shining brasses, and tiles; and Delft used in every imaginable way adds to the effect.

Books on Various Technical Subjects

A list of recommended works on topics of importance to architects and engineers

**VENTILATION**
An exhaustive work on the subject, being the report of the New York State Commission on Ventilation appointed by the Governor at the request of the New York Association for Improving the Condition of the Poor and supported by the Milbank Fund. The work discusses ventilation in buildings of many kinds, but chiefly in schools and other public or semi-public buildings.
620 pp., 7 x 10 inches.
Price, $15

**COLLECTED PAPERS ON ACOUSTICS**
By Wallace Clement Sabine
The work which is generally regarded as laying the foundation of the study of acoustics and the other branches of effort which grow out of it. It is the result of exhaustive research and much experiment with different materials and methods of building.
278 pp., 7½ x 10½ inches.
Price, $4

**TOWN PLANNING AND TOWN DEVELOPMENT**
By S. D. Adshead
This practical work takes up the question of town planning in a very broad way, beginning with its sociological aspect and the relation of large productive centers to their recreative and residential areas. Zoning, zoning laws and principles receive due attention, as does also the matter of town planning by private initiative, of which several peculiarly interesting examples are given, with plans and illustrations.
204 pp., 5½ x 8½ inches.
16 plates and 18 diagrams in the text.
Price, $5

**THE PLANNING OF APARTMENT HOUSES, TENEMENTS AND COUNTRY HOMES**
By Teunis J. Van der Bent
A complete treatise on the planning of these structures, with particular attention given to the methods of utilizing plot areas to the greatest advantage.
355 pp., 9 x 12 inches.
Price, $4.75

**HANDBOOK OF ORNAMENT**
By Franz Sales Meyer
A standard work on the use of ornament in architecture and decoration. Illustrated with 300 full-page plates of the ornament of all the historic periods of architecture. More than 3,000 illustrations.
540 pp., 6 x 9 inches.
Price, $3.60

**ACOUSTICS OF BUILDINGS**
By F. R. Watson
A late work on the important subject of acoustics, presenting the most recent results of research and recording the effects of experiment with different building materials under various conditions. The soundproofing of buildings and rooms is also considered.
155 pp., 6 x 9 inches.
Price, $3

**HOUSING PROGRESS IN WESTERN EUROPE**
By Edith Elmer Wood
In this volume a student of social and housing conditions sums up the progress made in England, France, Holland, Belgium, Germany, Italy and elsewhere in Europe, and gives a comparison with the results which have been attained in America. Excellent illustrations add to the value of the data presented.
210 pp., 5½ x 8 inches.
Price, $3

**ARCHITECTURAL COMPOSITION**
By Nathaniel Cortland Curtis
An excellent work on composition and particularly on the study and analysis of the plan. Illustrated by drawings by the author of buildings ancient and modern.
250 pp., 7 x 9½ inches.
Price, $6

Any of these volumes will be sent, carriage prepaid, to any address in the United States on receipt of price.

ROGERS & MANSON COMPANY
383 Madison Avenue
New York

It might be thought that the publication during a brief period of time of so many works dealing with interior decoration would result in glutting the market created by interest in the subject. Even a casual examination of this recent work, however, proves that while it handles what is necessarily the same subject matter, it treats the topic in a new way in that instead of approaching it from the historical standpoint, relating the progress of the periods of interior architecture and decoration to the reigns of various monarchs or the rule of different dynasties, it follows what might be called the evolution of ideas,—the stages of progress from the time of the medieval period in Italy until that in England when after the end of the eighteenth century the wane of the vogue of the Adam style led to chaos and loss of popular interest in the subject excepting such as was manifested in the various "revivals" which came after.

Perhaps it would be impossible when writing upon a topic already so abundantly covered to present anything of paramount interest which is fresh and unknown, but Mr. Gilman arranges in a guise new and attractive matter already well known even though not always fully understood, and it is useful to a student to have pointed out the various paths or roads which lead to the same ends. We particularly admire the way in which the author recognizes what we ourselves are likely to call the "Stuart" period. Most writers apply the term "Jacobean" to the entire period during which England was ruled by the house of Stuart, but we are apt to use "Jacobean" as defining the reign of James I, and the term "Stuart" what followed the Commonwealth, ending with the reign of Queen Anne who as daughter of James II belonged to the Stuart family.

Several pages of excellent bibliography are included, and one detail which is so good that it might well be widely copied is the arrangement of the illustrations. Instead of being scattered through the text, where they merely perplex and annoy the reader, they are grouped at the end of the volume and in such order that the reader can easily and quickly refer to them.


There is a particular interest in our observation of the development of architecture and building in England, possibly the interest which attends watching the solution of problems which are similar in many respects to those which engage the attention of architects and builders in America. The English architectural publications show occasionally work which is not exactly what we expect the English to produce, but these examples are exceptions to the rule which shows adherence to a standard which is generally high.

The English are fortunate, of course, in having a definite and consistent architectural tradition. For more than four centuries there has been passing a succession of stately architectural types, each reaching its culmination before giving way to, or rather being merged with, the style next to follow, and these centuries have left in the old civilization of England enough of the slowly accumulated results of building to influence present and future work. Then too, the character of the population of England was fixed centuries ago and has never been changed. Since the Conquest there has been no great movement which could change the race, and as generation has followed generation the character of the English has become more definite, all this being as different as possible from what prevails in a land possessed of comparatively little in the way of architectural tradition and inhabited by people recently come from every country under heaven and guided by nothing definite or stable in the way of tradition of any sort.

In this volume there is presented a layman's survey of building in England during a period covering roughly the last one or two decades, useful as affording a cross-section of what is being done. The volume is to some extent in the form of an essay and to some extent historical, giving the author's views of the theory of architecture and its history, besides reviewing the work which is selected for special mention,—work in such widely separated fields as the designing of churches, public buildings of different kinds, schools, residences, urban and rural, and many other types including the "industrial villages" or "housing groups" which the English handle so successfully.

An examination of the illustrations in the volume shows a strong adherence on the part of English architects to the English Renaissance,—their use of forms which are not precisely that of any of the types generally included in the term but made up of much the same motifs and expressing the same straightforward dignity and clothed with the grace which has for centuries characterized English building.


In the vast literature which for many years has been growing up around the cathedrals of England, they are discussed from the points of view of the historian, the antiquarian and the architect. Most of these cathedrals are the result of building which extended over centuries, each generation of builders working in the architectural style which was in favor at the time, some indeed having parts built in many or all of the styles which were in vogue in England from the Saxon to the Perpendicular Gothic with which the Gothic age and the great church building period in England simultaneously came to an end. St. Paul's alone of all the English cathedrals is built entirely in the Renaissance style, though certain others show Renaissance detail or influence in such accessories as altars or tombs to which considerable architectural character is likely to be given.

Miss Pratt's study of each of some 33 cathedrals does justice to its historical and architectural importance. In many instances these old buildings were reared as monastic churches and became the seats of bishoprics only when the monastic orders were suppressed during the sixteenth century, and enough of each building's history is given to explain its architecture and ornament. The volume contains a valuable review of the ecclesiastical architectural styles and a particularly helpful glossary.
When One Pint of Water Wastes Two Pounds of Cement

Observe this curve closely. It shows impressively the effect of the quantity of mixing water on the strength of concrete.

It is now known that excess mixing water, not only weakens concrete, but that it is actually wasteful of cement. One pint of water more than necessary in a one-bag batch decreases the strength and resistance to wear as much as though two or three pounds of cement were left out.

Here is a fact, which if brought home to the superintendent and the foreman, can be of great practical value in raising quality on the job.

Wouldn’t you like to have, right at hand for quick reference, a practical manual which tells how the quantity of mixing water can be closely controlled, so as to give concrete greater strength without using any more cement?

Then write today for our free booklet, “Concrete Data for Engineers and Architects.” We will be glad to send you extra copies for superintendents and foremen.

Take full advantage of the service the Portland Cement Association has to offer. One of the District Offices of the Association is always near you. Get acquainted with it.
A Work on Old Spanish Architecture

Reviewed by HORACE MORAN


It is said that the jewels of Isabella of Spain once made possible the discovery of America, and now more than four centuries later the wealth of our land is bringing about the discovery of Spain. These two countries enjoy somewhat the same brilliant atmosphere, some of our states, such as California and Florida, having also the high summer temperature of the Iberian peninsula, and this common heritage would seem to suggest a resulting similar architecture. It occurs to us, therefore, that we may be using questionable judgment in continuing universal use of the stolid and relatively gross and drab architecture and color of the dreary Northern countries of Europe. Perhaps the present re-discovering of Spain, coupled with our success in the use of cement, may tend to sway our coming Renaissance toward an architecture more suited to those parts of America where the climate resembles that of Spain.

The recent awakening of interest in the arts of Older Spain has resulted in some excellent work in this country, but the pace of the demand has been too rapid; our architects frequently show how little they know of that naive spirit which is responsible for true Spanish design. A few years ago there were almost no publications on Spanish work for the use of the architect or designer in the crafts. Today the research work of Arthur Byne and Mildred Stapley Byne, who live in Spain, has given us several most learned folios on ironwork, furniture, interiors and gardens, and the versatile pen of Ralph Adams Cram has contributed appreciative and valuable notes on the architecture of Spain, recently presented in one of the architectural publications. There are also several folios published in Spain, and at least two in Germany, and a few from other sources.

Many more volumes are needed to cover the wonders of this fertile land of design, and it is a pleasure to welcome the latest contribution, the collection of choice bits of design gathered throughout Spain by William Lawrence Bottomley, and well presented in his "Spanish Details." This volume gives glimpses of interesting motifs grouped so as to be of use when studying the characteristic features of the exteriors and interiors of Spanish houses as well as the never-failing bit of garden or patio. 'Tis a pity such a volume cannot convey an
appreciation of the color which plays so fine a part in Spanish architecture, even in the stucco walls. Who, having never seen it, could grasp, for example, the beauty of the golden and siena buildings of Segovia as seen through the deep green foliage and on a background of deep blue sky? Such a work as this by Bottomley and the volumes by the Bynes, to name only a few of the recent works on Spain, should be supplemented by a visit to Spain if the wealth of material they set forth is to be used for creative work in America.

It is interesting to follow our author through Spain as we turn over the plates and trace his quest for the best things to illustrate, and we appreciate how he must have felt the restraint of confining his effort to one volume in exploiting a land so rich in architectural detail. Even Mallorca, an island province of Spain, has been included, though worthy of a volume of its own!

The wise omission of pure Moorish work we note with satisfaction, for it is not that we wish from Spain, but rather the later quaint Moorish motifs and craftsmanship, absorbed but ever evident in the dominating note of early Renaissance design and known to Spaniards as “Mudejar.” The numerous scale drawings accompanying the plates would have been of more constructive service if the author had stressed details of construction and contours, with more notes as to materials and colors. Perhaps we would have preferred the pencil notes from his sketch books, from which he has with much labor worked up the plates of scale drawings. We venture to suggest also that a sharper focusing of the camera would have resulted in less diffusion of detail in the process of enlargement and reproduction.

Our thanks are due Mr. Bottomley for presenting to his fellow practitioners and an interested public this fruit of his studies in Spain, and in so highly attractive a form.


With the use of concrete now practically universal for building of the most widely different kinds it is of course vitally necessary that the nature of the material and its proper handling be well understood by architects, engineers and the workmen who actually deal with it. Perhaps the simplest of all the countless uses to which concrete is put is the building of foundations for residences; from this its use extends, when strengthened with steel reinforcing, to building bridges, dams and hydraulic structures of different kinds and for large buildings, much of which is work of great magnitude, where problems of considerable importance must be solved.

This constant use of concrete, particularly of reinforced concrete, has developed such familiarity with the material on the part of several who have used it extensively, that it is possible to formulate certain rules which are calculated to increase concrete’s usefulness by making its possibilities thoroughly understood. In this volume, which is one of a series of manuals edited by Messrs. Hool and Kinne which have been appearing. during the past few years, the subject of concrete is thoroughly dealt with. Beginning with “Preparation of Concrete,” it follows the subject through “The Transporting and Placing of Concrete,” “Forms,”

Any book reviewed may be obtained at published price from THE Architectural Forum DEPARTMENT.
BRIDGMAN'S LIFE DRAWING. By George B. Bridgman. 169 pp., 7x10 ins. Price $5.50. E. C. Bridgman, Pelham, N. Y.

SKETCHING, of course, plays an important part in the work of almost every department of art. It is of the first importance in painting and occupies a place almost as vital in sculpture, while in architecture the value of sketching or drawing is, of course, apparent and evident, and it must be mastered by the student who would excel in any of these branches of art. Many of the great masters of architecture as well as the most eminent among the painters of past centuries have left to the modern world many of their sketches, which prove their achievements, whether as painters or architects, to have been built upon a strong and sure foundation as masters of drawing.

While sketching of all kinds possesses certain attributes in common, the very extent of the subject presupposes its being divided into many different classes, two of which are sketching as applied to anatomy, dealing with the human figure, and sketching of buildings as applied to architecture. This volume devoted to sketching as applied to the human form is by an instructor and lecturer at the Art Students' League, New York, who is also author of "The Book of a Hundred Hands" and "Constructive Anatomy." This most recent of his published works on drawing is the result of long experience in teaching, as a lecturer and an instructor and deals with the drawing of the blocked human form, where the bending, twisting or turning of volume gives the sensation of action and movement. The work, carefully and thoughtfully written as it is and fully illustrated with reproductions from sketches of every part of the human frame, constitutes an important contribution to the broad subject of drawing.

OLD ENGLISH WALNUT AND LACQUER
By R. W. SYMONDS

QUITE as important in many types of architecture as interior design is the planning of furniture which goes with it. For each of the historic styles there were designed accessories which by being in agreement and harmony with their surroundings aided in creating the effect which the type made possible, easily marred by use of furniture unsuited to the surroundings.

With the architecture of any country or period there was used furniture more beautiful and distinguished than in England during the late Stuart and the early Georgian eras. Attracted by economic opportunities, the most skillful designers in Europe planned furniture which was built by the most finished craftsmen. This was the "Walnut Age," during which were made masterpieces in walnut, and intercourse with the East brought the use of lacquer, also fashionable, and imitated presently by English workmen. Something of the closeness of the parallels between anatomical and architectural drawing might be indicated by certain of the volume's chapter headings: Drawing the Figure, Building the Figure, Balance, Rhythm, Distribution of Mass, Light and Shade, Mouldings, Proportion, How to Measure, all this being applied to different aspects of anatomical sketching, but holding much to interest the student of drawing of an architectural nature.

As regards mouldings: "Architectural mouldings consist of alternate rounds and hollows, of plane or curved surfaces, placed one beneath the other to give various decorative effects by means of light and shade. The human figure, whether standing erect or bent, is composed of a few big, simple masses that in outline are not unlike the astragal, ogee, and opophyge mouldings used in architecture. Looking at the back of the figure, there is the concave sweep of the mass from head to neck, then an outward sweep to the shoulders, a double curve from rib cage to pelvis, ending abruptly where the thigh begins, a slight undulation halfway down to the knee, a flattened surface where it enters the back of the knee, another outward sweep over the calf and down to the heel, the whole a series of undulating, varied forms. And the front of the figure curves in and out in much the same manner, a series of concave and convex curves, and planes. The distribution of light and shade brings out these forms.

The work, carefully and thoughtfully written as it is and fully illustrated with reproductions from sketches of every part of the human frame, constitutes an important contribution to the broad subject of drawing.

Fully Illustrated, 176 Pages, 9x11 Inches, Price $8.75

ROGERS & MANSON COMPANY, 383 Madison Avenue, New York

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM BOOK DEPARTMENT 43
Tyler "Noiseless"
Installations in

Silent, smooth-operating elevators are a valuable asset in apartment hotels. Here relaxation is sought from the hustle and bustle of business, and noisy elevator doors are doubly irritating. Rooms adjoining such elevators are difficult to rent or lease—even at a reduced rate.

Tyler "Noiseless" Elevator Entrances and Cars are an investment in smooth, silent operation—in pleased tenants and guests—in maximum rental values.

In design, color, and architectural treatment also, Tyler Equipment contributes to the restful harmony and attractiveness of the interior. The grain and color of the finest woods can be reproduced—

THE W. S. TYLER COMPANY
67 Devonshire Street
BOSTON

ELEVATOR ENTRANCES

THE ALCAZAR
Cleveland
H. T. Jeffery, Arch.
Tyler Elevator Entrances

THE W. S. TYLER COMPANY
247 Park Avenue
NEW YORK

FENWAY HALL
Cleveland
Geo. B. Post & Sons, Archts.
Tyler Elevator Entrances

BOLTON SQUARE HOTEL
Cleveland
Reynold H. Hinsdale, Arch.
A Work on the Development of Wall Paper

Reviewed by CARROLL BILL


NE hardly associates romance and human interest with such prosaic stuff as wallpaper, but Nancy McClelland has written a most fascinating story of its origin, growth and development. It is rather surprising that, familiar as we are with wallpaper as a necessary item of our modern domestic life, so little is known or has been written to tell us just how and why it came into being and how it progressed from its early stages of hand-painted crudity to the high degree of technical and artistic excellence of those fine scenic papers of the early nineteenth century now so eagerly sought by collectors and decorators. Not that the subject has been entirely neglected, but as much of the matter available in books is so utterly conjectural, we lack confidence in its basic facts, and Miss McClelland tells us in her first chapter that there has never been a serious attempt to study the subject from original sources, and that the chief reason for the lack of a scholarly treatment of the matter was that there were no readily accessible sources of authentic information. We admire the author's painstaking energy in unearthing from the most remote places material bearing on the subject, and her quest led through French governmental legislative archives, into private houses, aties and cellars, and through ancient English, French and German literature, occupying a period of three years' constant pursuit of the subject in hand.

The period covered by this history is, roughly speaking, from 1500 to 1840, after which date enough is known of the wallpaper industry to make further research unnecessary; from the time of the mid-nineteenth century the increasing efficiency of machine printing put a gradual end to any notable production of hand-blocked papers. The author found that the history of the development of wallpaper could be divided into periods, that each period had a real relation to those preceding and following, and that the definite purpose for the creation of wallpaper was to produce inexpensive effects of color and texture in imitation of and in substitution for costly woven fabrics and painted decoration.

The first period has largely to do with the story of the dominotiers, a group of Frenchmen whose amusing early efforts in making designs of little grotesques, geometrical patterns and marbleizing, made possible the later developments of decorated paper for wall hangings. Following them in what may be called a second period came the making of paper intended to imitate tapestries and costly fabrics, hitherto only to be possessed by the wealthy. The designs were laid on paper with a specially prepared varnish and chopped wool of various colors blown or dusted on so as to adhere, forming a raised pile of a luxurious texture at a comparatively low cost. Then follows a period in which there was developed paper printed to imitate figured fabrics, linen or cotton; and now the attempt, hitherto untried, was made to so arrange designs that by placing them side by side a "repeat" of pattern was obtained, and Jean Papillon, the originator of this idea, must be credited with the invention of wallpaper as we know it today. This same Papillon furnishes us with another amusing phase of the industry in that he carried out personally all steps from the first making of the designs, engraving, painting, and coloring them, selling the finished products, and then to give full value, putting the paper in place on the walls,—truly a one-man affair, quite inconceivable in this day of labor specialists when each detail belongs to some one workman. One of the most interesting chapters of the history is that telling of Chinese painted paper. It was customary at the conclusion of important business between great Chinese merchants and their European clients to present gifts, usually in the form of painted paper panels with designs of bamboos and landscapes, the wily Chinese keeping for their own use the more desirable panels of silk, painted with birds, flowers and figures. So it was that returning sea captains brought back these delightful and novel gifts, resulting in the sending back to China orders for more. The demand so far exceeded the supply that these Chinese papers were copied by

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM.
Spanish Details
A Highly Practical Work on the Spanish Renaissance
By William Lawrence Bottomley

In this volume there is presented a collection of illustrations and measured drawings of carefully selected details of Spanish Renaissance architecture. The work of a New York architect who has been notably successful in attractive use of Spanish motifs in his own practice, the volume presents not so much work of a striking and magnificent character as what is comparatively moderate in scale and therefore adaptable for present-day use in America.

The volume is replete with illustrations of well chosen, simple Spanish facades, doorways, windows, balconies, balustrades, exterior stairways and the grilles of wrought iron or carved and turned wood which are used at gates, windows and doorways. Interior details include the arcades of patios, ceilings, chimneypieces, floors, doors, shutters, wall fountains, etc., and since in most instances the illustrations are accompanied by measured drawings the reproduction of these details is not difficult.

Of all the recent works on the Spanish Renaissance this is perhaps the most practical for actual use.

Frontispiece in color; 104 plates and measured drawings, 11 x 13¾ ins. In portfolio form, $12.50; if bound, $15.

ROGERS & MANSON COMPANY
383 MADISON AVENUE NEW YORK

French and English paper designers, and this really created an almost distinct period, influencing not only wallpaper but the design of furniture and lesser architectural detail as well. Some wonderful Chinese papers are preserved in this country, notably in the Hooper mansion in West Manchester, and the Dorothy Quincy House in Quincy, and the writer had the pleasure of helping to install in a sympathetic architectural setting that marvelous Chinese paper now in Mr. Merriman's house in Providence, illustrated in this volume.

The high period, we are told, of greatest excellence of technique and artistry, was that in which, departing from the strictly imitative, paper was designed and printed to produce the same effects as mural decoration, lihterto to be had only by the expensive employment of eminent artists, and to be afforded only by the rich. Reveillon, with his small capital of 18 francs but with the priceless inspiration to employ for his own designers those very painters most in vogue and to reproduce their work by means of his amazing knowledge of the technique of printing, produced panels of such a high degree of artistic merit as to make it possible to combine them with the pretentious architectural detail of the period, such as carved panel mouldings and elaborate door heads, taking the place of painted decoration.

We are shown illustrations of one of Reveillon's most noteworthy creations, a series of panels, "The Five Senses," classical figures and detail in tones of gray against a blue-green background.

The industry continued through the vicissitudes of the Revolution, surviving the depressing effects of the Terror in a remarkable way, where other enterprises were destroyed, and reflecting faithfully the change in taste from the delicate flowers, ribbons and lovely tints of the Louis XVI period to the harsher military spirit of the Directory, Consulate and Empire with their characteristic detail of battle axes, lances, spears, shields and cruder color schemes as architecture and decoration mirrored the history of the times.

Miss McClelland gives us in "Period Five, or the Epoch of Scenic Papers," what is perhaps the most interesting of all the subdivisions of the subject; for the picture papers, we must admit, appeal most strongly to our fancy and illustrate by subject the close relations between France, the country of their origin, and America at the beginning of the nineteenth century. Again, they are the papers with which we are most familiar, speaking from a decorative viewpoint, and their origin in France, their journeyings across the seas in the cabins of sailing vessels, and the hanging of them in stately New England homes cannot fail to stimulate our romantic interest.

The limits of a review make impossible further discussion of the quantity of detail contained in this history of wallpaper, but mention must be made of the delightful introduction by Henri Clouzot, Conservateur du Musee Galliera, Paris, the wealth of illustrations, 12 in color and 245 in halftone, grouped very conveniently for reference, the alphabetical list of names connected with the industry from 1500 to 1840, a table of the most important French papers of the eighteenth and nineteenth centuries, a bibliography and a chart of important dates in wallpaper history. Miss McClelland's "Historical Wall Papers" is an enjoyable, valuable and most welcome addition to the literature dealing with decorative
ALTHOUGH wood is by far the most used of all building materials in America, it is surprising to find that less is known regarding its nature, properties and economical use than of most other materials. A steel rail is made according to a formula prepared by a metallurgist; there are standard mixtures for cement and concrete; the physical properties of metal and stones are accurately known; but even the best grading rules of the lumber manufacturers are only approximations to the actual values of different classes of lumber. Then too, the waste which occurs in connection with lumber manufacturing, notwithstanding the great improvements which have been made in the industry, is enormous; not more than from 25 to 50 per cent of wood in a tree, we are told, reaches an ultimate user,—a striking example of truly American waste! Because our forests have seemed to be inexhaustible there has appeared to be no need for finding uses for the portions of a tree which could not be utilized for lumber. The timber-using public has taken the cream, and no one would look at the skimmed milk. Consequently the owner of the milk could only throw it away. The toll taken by waste has been prodigious beyond belief.

Aided by the technical and statistical studies which for some 20 years have been carried on by the United States Forest Service, Mr. Kellogg here presents a treatise on wood and its uses. The physical properties of wood are discussed, its structure, and the various kinds of wood and the difference between woods of the same general kind. But perhaps the use of wood is more important as well as more interesting, and the author deals with topics such as Cutting; Seasoning; Grades; Standards; Preservatives; Use of Paints and Finishes, and much is said regarding uses of wood for various purposes in building. Mr. Kellogg sees no danger of a “timber famine,” due chiefly to supervision over forests which will probably be assumed by federal or state governments, enforced by suitable legislation.


ENGLISH architects have been particularly successful with their handling of the “small house problem,” whether the small houses be individual buildings or in the groups which are usual when a number of houses are erected by some one interest or by some industrial concern for housing its employees. This book gives an excellent presentation of the best of such work, illustrations of the exteriors and interiors of houses of various types and materials and the floor plans making plain the results of economy of material and floor area which present-day building conditions demand. A valuable summing up of a subject which is of interest to architects everywhere, particularly to those whose work is largely of a domestic character.

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM

SOCIETIES which exist for the safeguarding of patriotic tradition may well find an additional aim in furthering the preservation and study of early architecture in America. The early settlers in what are now the states along the Atlantic seaboard, when once they began to build permanent homes at all, built them of strength and solidity which have enabled them to last in many instances for almost three centuries; but even homes built by the American colonists are not proof against the ruin and decay which follow neglect, and many of these venerable buildings have reached a condition which demands that their architectural excellence be recorded and preserved unless their merits are to be forever lost to the world. The important work of rendering possible the study of the old houses of Connecticut, has been undertaken by the Society of Colonial Dames, and is promoted in this handsomely produced work, compiled from material collected by the Committee on Old Houses, and published on the foundation established in memory of Calvin Chapin, Class of 1788, Yale College.

The parts of Connecticut covered by this study yield an astonishing number of fine houses, which range from the simplest and most austere buildings to others which are of surprising luxury and richness. The work deals with 64 of these old structures, each house being given many illustrations of exteriors and interiors. The value of the volume to architects is great, since in addition to views of exteriors and interiors there are floor plans of the buildings and measured drawings of many details as well as carefully compiled lists of the materials used. The volume is literary and historical as well as architectural, and the illustrations and plans are accompanied by descriptions which aid in visualizing these old houses.


It is not easy and perhaps not even possible to present in a volume of "pocket size" a view of a subject as large as English architecture which would be sufficiently comprehensive to possess value for the student or interest for the casual reader. For this reason it might almost seem to be a mistake to issue a new work which differs little, if at all, from quite a number of small volumes which aim at nothing more than being synopses or outlines of more complete works. It might be replied, of course, that it is not easy to persuade the public to study architecture at all, and that to encourage such reading the matter must be frequently presented anew, condensed into small compass and so written that no heavy demands are made upon either the imagination or the understanding of the reader. There is always hope that by suitably encouraging a reader his interest may be captured anew, and thus there be one more student of history for whom the architecture of the ages actually lives and in whose missionary effort which might well perform excellent work. It has been well written and adequately illustrated.

COLONIAL INTERIORS
Photographs and Measured Drawings of the Colonial and Early Federal Periods
By LEIGH FRENCH, Jr., A.I.A.

INTERIOR woodwork during the Colonial and early Federal periods was exactly what is demanded for "Colonial" interiors today. The character of workmanship in the colonies insured craftsmanship of excellent quality, and this, together with design carefully studied from the simpler contemporary English work, resulted in woodwork which it would be difficult to improve upon. For this reason close study is being made of such old American interiors as still exist, and measured drawings make possible the reproduction today of much of the finest woodwork of the seventeenth or eighteenth century. These forms, while they involve not a little subtlety in the details of design, demand merely the use of simple mechanical processes which are not beyond the skill of any reasonably proficient woodworker, sometimes of an ordinary carpenter. Stenciling of floors, together with notes on the colors originally used. It is a volume which in its practical usefulness will be of great value to architects whose work involves much use of early American interior design.

ROGERS & MANSON COMPANY
383 Madison Avenue, New York

Any book reviewed may be obtained at published price from THE ARCHITECTURAL FORUM.
TRADE SCHOOL HELPS BUILDING

THE “Help Wanted” advertisements in city newspapers still call for skilled workers in the building trades at large wages, and both employers and organized labor are trying to find ways to meet the shortage. A part of the problem has been solved by the New York West Side Y. M. C. A. Trade Schools, which started more than a year ago with courses in bricklaying, tile setting and plastering, and have succeeded in giving training to over 1,400 students. The primary purpose of these schools was to help men to help themselves—to find better opportunities for achieving success and happiness through employment at useful work, even if it involved ‘discarding their “white collars.” This is in keeping with the ideals of the organization in all of its activities.

The sort of contribution to the building industry that has been made is illustrated by one group of students which worked at tile setting in the new high school building at Scranton, Pa. Charles J. Bogert, a leading authority in the tile setting industry, says: “I never saw a better piece of work in all the years that I have been connected with the industry. Some of these corridors are from 30 to 50 feet long, and you can look along any joint and you will find it as true to line as if laid up with a chalk line.” Another graduate tells how he is succeeding in business for himself. He ordered $1,400 worth of materials the first month, increased this to $3,000 the second month, and sees his way clear to a prosperous future. The students come from all parts of the world. Among the 27 enrolled last month, 17 different countries were represented.

The building trades school is training men sufficiently to go out, get a start, and “make good.” Contractors are continually asking for graduates. The school is making a definite contribution toward the success and happiness of young adults mechanically inclined and capable of quickly mastering the practical fundamentals of bricklaying, plastering and tile setting. It is making a sizable contribution to a national construction program that urgently needs mechanics more than it needs anything else.

ARCHITECTURAL PHOTOGRAPHERS

The Forum is glad to make note of the fact that Tebbs & Knell have been awarded the contract for photographing the work of Graham, Anderson, Probst & White of Chicago, preparatory to the publication in book form of the work of this firm which succeeded Daniel H. Burnham & Co. Tebbs & Knell for many years, together with Paul J. Weber, Kenneth Clark and John Wallace Gillies, have been contributing photographs to The Forum’s pages.

A NEW LIGHTING PUBLICATION

A PUBLICATION of considerable value to architects in drawing up plans for ornamental exterior lighting is being distributed by the Westinghouse Electric and Manufacturing Company. The publication, which is known as “Number C 1674,” is entitled, “Ornamental Brackets, Newels and Lanterns.” As it has been issued primarily for use in architects’ offices, the filing classification of the American Institute of Architects has been included on the cover of the book to facilitate its use.

A great number and variety of exterior lighting units, artistically designed for use in the illumination of entrances and facades of public buildings, the gateways of residences and private grounds, and the passageways of bridges and viaducts, are included. For every type of fixture included in the booklet, a clear photograph and a dimensional drawing are provided, together with a brief description. Views of actual installations of many of the units are also contained.

These paragraphs from the foreword to the publication indicate the purpose for which it is issued: “Modern lighting science has made it possible for the architect or illuminating engineer to retain the decorative motifs of the early centuries in combination with the most efficient equipment for distributing light.

“Effectiveness in a lighting unit is a happy combination of lamp, glassware and light control. Efficiency need not be sacrificed to secure an artistic luminaire; in fact, the more ornate designs usually permit the inclusion of scientific equipment as readily as the simpler types of lighting fixtures.”

LANDSCAPE ARCHITECTURE AT U. OF P.

THE scholastic year of 1924-1925 will see the inauguration at the University of Pennsylvania of a five-year course in landscape architecture which will be open to both men and women, leading to the degree of Bachelor of Landscape Architecture.

The new course is framed on the conception that landscape architecture is a fine art, and it will comprise a range of studies, both technical and cultural, deemed necessary to a thorough preparation for this art. The trustees have placed it under the direction of Robert Wheelwright, Landscape Architect and Member of the American Society of Landscape Architects. A graduate of Harvard University (A.B., 1906 and Master of Landscape Architecture, 1908), Professor Wheelwright has achieved success as a practitioner in this field, both in New York and Philadelphia, while as a member of the American Society of Landscape Architects he was one of the founders and for ten years an editor of its official organ, Landscape Architecture.
Aside from its dignity and presence, the flexibility of Telesco Partition makes it particularly adaptable for reception or waiting rooms.

No matter what your first requirements—no matter how they change, Telesco Partition can be changed with them. Standard units, extension top, screwed together construction, all make this possible.

Send for complete catalogue.

Improved Office Partition Company
25 Grand St. Elmhurst, New York, N.Y.
AWARD OF BOOTH SCHOLARSHIP

The first award of the George G. Booth Traveling Fellowship in Architecture has just been made by the College of Architecture of the University of Michigan. Of the nine competitors who made entries, the designs of two were of such nearly equal merit that the jury decided to divide the $1200 income of the Fellowship between Marion F. Blood, a member of the Class of 1924, and Ralph R. Calder, who was graduated in 1923. Both have had office experience in addition to academic training, and both are students of high scholarship. The annual income of the Fellowship, being $1200, each received $600, to which Mr. Booth generously added $500.

ROTCH TRAVELING SCHOLARSHIP

This year's award of the Rotch Traveling Scholarship was made to Eugene F. Kennedy, Jr., of Boston, by a jury consisting of Ralph Gray, George Howe and Otto Faelten. The trustees of the Rotch Fund concurred in the award, and the Boston Society of Architects voted its approval. Second place was given to Leo A. Whelan, also of Boston, who received the prize of $100 in gold.

The income from the Rotch Fund provides for the annual payment to the recipients of $1500 for a period of two years. During the 40 years that the fund has been established, an equal number of young men have enjoyed its benefits. One-half have been Massachusetts men and the remainder have come from 12 other states and foreign countries, the only condition for competitors being that they be citizens of the United States, under 30 years of age and must have been engaged in professional work during two years in the employ of a practicing architect resident in Massachusetts.

A MEMORIAL EXHIBITION

At the Art Center, 65 East 56th Street, New York, there is being held during the summer an exhibition of work by the late Bertram Grosvenor Goodhue which pertains to printing and book illustrating. In addition to the drawings for the bulletin of the Maryland Cathedral and for the well known Cheltenham type, there are copies of Rossetti's "The House of Life," "The Love Songs of Proteus," by Blunt, and "Sonnets from the Portuguese," the borders and initials of which were designed by Mr. Goodhue, while perhaps the most interesting item is the edition of the Book of Common Prayer, the type and decorations for which were designed by Mr. Goodhue for the Merrymount Press, while the illustrations were by the English artist, R. Anning Bell. The exhibition proves anew the value of Mr. Goodhue's skill in this work.

10,000 ARCHITECTS IN 1926

In forming a plan for developing the membership of the American Institute of Architects, according to the New York Times, it has been estimated that by 1926 the number of architects in the United States will be 10,000.

The Institute, it was said, must enroll 4,000, or 40 per cent of this number, in order to make it truly representative of the profession. The Institute now has 2,774 active members. Last year a net gain of 230 was reported. This year the net gain is only 153. There has been a gain of 1,332 in three years.

The New York Chapter, founded in 1867, has nearly 400 members. The Brooklyn Chapter, founded in 1894, has about 100, and the New Jersey Chapter, founded in 1900, has more than 130 members. Broad plans of expansion, both in the public interest and in the direction of more effective professional organization, will be carried out during the administration of Mr. Waid, culminating in the next national convention of the Institute, to be held in New York in 1925 in connection with a great international exhibition at the Grand Central Palace.

THE BEAUX ARTS

In speaking in Boston lately before a body of architectural students, Professor Albert E. Ferran, who has been teaching at the Massachusetts Institute of Technology, touched upon the early history of a great institution.

In introducing his subject the Professor gave a brief outline of the Ecole Nationale et Speciale des Beaux Arts, which was founded by Colbert in 1648, under the title of Ecole Academique. It received its present title in 1793. Pupils are admitted from the age of 15 to 30 years, after examination, in one of the sections of painting, sculpture and architecture.

The number of students has always been limited to those who were fitted by temperament and inclination to do the work required. In 1720 there were only 22 students, although the school had been established more than 70 years. Unless the student, obtains the required number of mentions and medals he is sent back to do the work over again.

In 1761 Blondel started his academy, which by his Cours d'Architecture did so much to stimulate an understanding and appreciation of the art of building. In 1785 the Prix de Rome was established, and Fontaine was the first pensionnaire of this famous institution. The speaker told of the origin of the loge and the atelier systems, the latter by Blondel's son, the famous Pontist. During the revolution the teachers carried on the work from their private funds until the authorities realized that this was properly a government function.
The Minute You See It
You’ll Know That You Have the Solution.

The solution to that never fully solved problem of both owners and tenants — “How can we plan an office layout that will take care of the necessary changes in years to come?”

Send for a model of Telesco Partition.

At your request, we will send, without expense, a complete miniature section of Telesco Partition. The minute you see it, you can see, how in thousands of offices it is solving the problem of movable partitions.

It will tell you exactly what our telescopic principle is, and how the partition can be made to fit any height ceiling.

It shows how the partition is screwed together and how easy it is to assemble and dismantle without help from an outside contractor.

You will also be able to tell why Telesco Partition can be used over and over again without cutting or damaging it.

Write today and we will mail the model at once.

It comes in a box 13 x 20 inches, and will be an ornament while in your office.

Telesco Partition
 REG. U.S. PAT. OFF.

IMPROVED OFFICE PARTITION CO. 25 GRAND ST. ELMHURST, NEW YORK, N.Y.
## CONTENTS for SEPTEMBER 1924

### OFFICE BUILDING REFERENCE NUMBER

<table>
<thead>
<tr>
<th>Plate Illustrations</th>
<th>Architect</th>
<th>Plate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Oil Building, San Francisco</td>
<td>George W. Kelham</td>
<td>33, 34</td>
</tr>
<tr>
<td>Bank of Italy Building, Los Angeles</td>
<td>Morgan, Walls &amp; Clements</td>
<td>35-37</td>
</tr>
<tr>
<td>London Guarantee &amp; Accident Building, Chicago</td>
<td>A. S. Alschuler</td>
<td>38-40</td>
</tr>
<tr>
<td>Boston Insurance Exchange</td>
<td>Coolidge &amp; Shattuck</td>
<td>41, 42</td>
</tr>
<tr>
<td>American Radiator Co. Building, New York</td>
<td>Raymond M. Hood</td>
<td>43</td>
</tr>
<tr>
<td>Genesee Building, Buffalo</td>
<td>Edward B. Green &amp; Sons, Inc.; Merrell &amp; Loucks</td>
<td>44</td>
</tr>
<tr>
<td>Westinghouse Building, New York</td>
<td>Starrett &amp; Van Vleck</td>
<td>45, 46</td>
</tr>
<tr>
<td>Keefer Building, Montreal</td>
<td>Ross &amp; Macdonald</td>
<td>48</td>
</tr>
</tbody>
</table>

### LETTERPRESS (Concluded) | Author | Page |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Buildings, Past, Present and Future</td>
<td>Clarence T. Coley</td>
<td>113</td>
</tr>
<tr>
<td>Pacific Telephone &amp; Telegraph Co. Building, San Francisco</td>
<td>J. R. Miller &amp; T. L. Pfleger and A. A. Cantin, Associated Architects</td>
<td>115</td>
</tr>
<tr>
<td>Buhl Building, Detroit</td>
<td>Smith, Hinman &amp; Grylls, Architects</td>
<td>116</td>
</tr>
<tr>
<td>Eliminating Fire Hazards in Office Buildings</td>
<td>Ralph P. Miller</td>
<td>117</td>
</tr>
<tr>
<td>Materials and Maintenance</td>
<td>Edward Van Vleck</td>
<td>119</td>
</tr>
<tr>
<td>Economic Factors of the Office Building Project</td>
<td>Leo J. Sheridan</td>
<td>121</td>
</tr>
<tr>
<td>Knapp Buildings, New York</td>
<td>Cross &amp; Cross, Architects</td>
<td>133</td>
</tr>
<tr>
<td>Pacific Gas &amp; Electric Building, Oakland, California</td>
<td>Charles William Dickey, Architect</td>
<td>134</td>
</tr>
<tr>
<td>The Architect and The Building Manager</td>
<td>William Marshall Ellis</td>
<td>135</td>
</tr>
<tr>
<td>Financing the Office Building</td>
<td>C. Stanley Taylor</td>
<td>137</td>
</tr>
<tr>
<td>The Office Building and The City</td>
<td>Earle Shults</td>
<td>141</td>
</tr>
<tr>
<td>Ashland National Bank Building, Ashland, Kentucky</td>
<td>Schenck &amp; Williams, Architects</td>
<td>142</td>
</tr>
<tr>
<td>Office Interiors</td>
<td>John Taylor Boyd, Jr.</td>
<td>143</td>
</tr>
<tr>
<td>Mechanical Equipment of Office Buildings</td>
<td>Clyde R. Place</td>
<td>147</td>
</tr>
<tr>
<td>Municipal Building, Brooklyn</td>
<td>McKenzie, Voorhees &amp; Gmelin, Architects</td>
<td>153</td>
</tr>
<tr>
<td>Semmes Building, Washington</td>
<td>George N. Ray, Architect</td>
<td>154</td>
</tr>
<tr>
<td>Modern Office Building Appliances</td>
<td>B. H. Bellnap</td>
<td>155</td>
</tr>
<tr>
<td>New Caron Building, Montreal</td>
<td>Macvicar &amp; Heriot, Architects</td>
<td>158</td>
</tr>
</tbody>
</table>

### Bibliography | | 159 |
It is characteristic of Albert James MacDonald that he never sat for a formal studio photograph. This picture, taken last spring in Venice, will be recognized by his friends as an excellent likeness.
ALBERT JAMES MAC DONALD
1889-1924

The drowning of Albert James MacDonald at Wareham, Massachusetts, on August 17, 1924, brought to an end a life far too brief, but one filled with useful work and crowned with achievement. Blessed with a temperament always buoyant and genial and with a rare capacity for friendship, he overcame obstacles largely by the sheer force of a magnetic personality. A plan once fully made was likely to be followed through with a quiet, steady, driving persistence which disarmed criticism, brushed aside objection, and eventually attained the end held in sight from the beginning.

Born in Brookfield, Massachusetts, December 17, 1889, and raised in the neighborhood of Boston, he was educated in the public schools and later studied architecture at the Massachusetts Institute of Technology, beginning his career in the office of Aymar Embury II of New York.

Mr. MacDonald early appreciated the opportunities offered the occupant of an editorial chair,—opportunities not so much for personal advantage as for studying and influencing present-day architectural development. Devoted to the study as well as the practice of contemporary architecture and possessed of business vision and judgment unusually sound, and interested, too, in the opportunities held forth by the publishing field, what was more fitting than that he follow an inclination so plainly manifest? Thus began a course of action which, as viewed now in retrospect, seems to have been, like many of his undertakings, fully and definitely planned from the start.

In 1911 Mr. MacDonald became assistant editor of The Architectural Review, then published in Boston. Two years later he became associated with the late Arthur D. Rogers in editing The Brickbuilder, which in 1917 became The Architectural Forum, and upon Mr. Rogers' death in 1919 he became Editor of The Forum and President of the Rogers & Manson Company. To his efforts are largely due the steady growth and development which have brought The Architectural Forum to its present position. A rare insight into the problems which beset the modern architect brought an understanding of the functions of an architectural journal, and an editorial instinct naturally keen was developed by constant study and experience.

Along with the buoyancy and geniality of his disposition there went engaging simplicity and frankness. The unassuming manner which characterized all his relations meant much to his co-workers and assistants. Unfailing kindness and large sympathy marked his contacts of every kind, and it may almost be said that by his death every acquaintance has lost a friend.

It is not given to many to leave so complete a record of duty faithfully and successfully performed, or so wide a circle of friends to whom death brings a deep feeling of personal loss.
I am shocked to learn of the death of Albert J. MacDonald, Editor of The Architectural Forum. Rogers, with his rare spirit, gave your journal a broad foundation; MacDonald shared his vision for the future of the profession. We mourn the loss of a sympathetic lover of architecture, a modest but energetic worker, a genial and always true friend.

D. Everett Waid,
President, The American Institute of Architects.

I feel sure that the architectural profession as a whole will feel very keenly the loss of Mr. Mac Donald.

The Forum for many years has occupied a unique position in the field of architectural publications, and we of the profession are inclined to regard this as an established condition, overlooking the personality which must necessarily stand behind and be responsible for every important work; but we do realize now how much Mr. Mac Donald's untiring efforts and disinterested service meant, not only to the profession but to Architecture as an Art.

Harvey Wiley Corbett,

My acquaintance with Albert J. Mac Donald was limited to those brief interviews when he called to seek material for The Forum, or to discuss some feature of that journal. These visits, extending as they did over a number of years, remain as pleasant memories, and they were neither too short nor too infrequent to impress upon me the personal qualities and sincerity of the man.

Mac Donald always wanted the best for The Forum. He was critical in the choice of his material, eager in the search for something that would be of real educational value and of practical service to the architect. Alive to all the new work that was being produced, he was always ready to wait, even at the risk of not scoring a "beat," until the kindly hand of time had mellowed both the building and its surroundings. He appreciated beauty. His sympathy for and patience with the architect's point of view made him a welcome visitor.

The architectural profession has lost a true friend, but it will not forget Mac Donald's devoted work to make The Forum what it is today.

J. Lovell Little,
President, The Boston Chapter of the American Institute of Architects.

There are not too many good Editors—men who combine ability with personality—in the whole magazine field, and that we should so suddenly and so tragically lose one of the very best of them cannot but be a source of sincere sorrow to architects, writers and all who have come to look to The Architectural Forum for what Albert J. Mac Donald put into it.

His technique of editing went far beyond routine, and the magazine into which he put so much of himself showed from the first the keen discrimination and consistent ideals of the true editor. Always interested, genial and receptive in his personal contacts, Mr. MacDonald won and held the warm personal regard of those of us who wrote for him, as well as of the host of architects who came to know him after he took over the Editorship of The Forum.

His loss is a personal thing, not to be measured in words or phrases. The monument to his work is an architectural magazine which commands the interest and recognition of that most exacting of clients, the architect, and the monument to his personality is the real affection with which he will always be remembered by those who knew him.

Matlack Price.
PROGRESS OF ZONING

Approximately 24,000,000 people, living in 261 municipalities throughout the United States, are enjoying the benefits of zoning, according to statistics compiled by the Division of Building and Housing of the Department of Commerce. The greatest zoning center is in the territory in New York State and northern New Jersey, having New York for its hub; other centers are in California, Ohio, Massachusetts, Illinois, and Wisconsin.

Secretary Hoover, in a recent statement, characterized properly drawn zoning ordinances as "reasonable, neighborly agreements as to the use of land." They divide a city into districts in which are limited the use to which land and structures may be put; the height and number of stories of the buildings; and the areas of the lots to be occupied by the buildings. Their professed object is to regulate the use of private real estate for the purpose of promoting health, safety, morals and the general welfare of the entire community.

That the idea has made a strong appeal to the American people is shown by the rapid spread of zoning. On January 1, 1923, there were only 129 zoned cities, towns and villages. The first comprehensive effort to zone was the passage of a zoning ordinance by New York in 1916, although Los Angeles passed a "Use" ordinance in 1909, and Boston regulated the height of buildings in 1904. Cities, towns and boroughs throughout the country generally are showing more than a passing interest in zoning. Where authority is granted, various municipalities are actively engaged in the solution of their zoning problems with enthusiastic zoning commissions and auxiliary committees at work. Even where state legislation does not authorize zoning, various public spirited and progressive organizations are studying local situations so that when zoning can be effected legally, much of the preliminary work will be finished and much valuable time thus saved.

New Jersey leads in the number of zoned municipalities, having 66; New York has 41; California has 33; Illinois, 25; Massachusetts, 24; Ohio, 16; Wisconsin, 13; Indiana, 5; Michigan and Missouri, 4 each; Iowa and Rhode Island, 3 each; Florida, Michigan, Oklahoma, Pennsylvania, Virginia and Washington, 2 each; and Arkansas, Colorado, Connecticut, Georgia, Maryland, Nebraska, North Carolina, North Dakota, South Carolina, Tennessee, Utah and the District of Columbia, 1 each. The complete list of zoned municipalities can be secured from the headquarters of the Division of Building and Housing, Department of Commerce, Washington.
Why take a Week To do a One Night Job?

TELESCO Partition can be removed again and again with no expense but a few hours of carpenter’s time.

Plaster partition is a total loss when moved. The resulting dirt and confusion cannot be figured in money. Even ordinary nailed-together wood partition must be ripped and damaged when a new layout is wanted.

Why subject tenants or clients to this expense and inconvenience when it can be so easily avoided? TELESCO Partition is erected entirely with screws. It can be taken down and assembled again with ease. And most important of all, because of the extension top, it can be made to fit under any height ceiling without alteration.

Write today for catalog and full particulars.

IMPROVED OFFICE PARTITION CO. 25 GRAND ST. ELMHURST, NEW YORK, N.Y.
LECTURES AT THE METROPOLITAN

As part of the exercises attending the opening of the Wing of American Decorative Arts, given by Mr. and Mrs. Robert W. de Forest, there have been announced two courses of lectures. The first series of eight lectures, to be given on Mondays, from November 17 to January 4 in the Lecture Hall, will seek to present a general view of the various phases of art which are exemplified in the collections of the new wing. The second series of seven talks, to be given on the Tuesdays following, November 18 to December 30, in the galleries of the wing itself, will take up in a less formal manner the objects exhibited, under the same general headings as those adopted for the first course.

Attention is called to two lectures to be given by Herbert Cescinsky on March 15 and 22, 1925, at four o'clock, upon The Influence of Architecture on English Furniture and The Minor Craftsmen in English Furniture.

EXHIBITION IN MONTREAL

Under the auspices of the Province of Quebec Architects' Association there will be held at the galleries of the Art Association of Montreal, from November 12 to 24, an exhibition of old French architecture in Quebec, consisting of photographs, measured drawings and sketches of buildings which have been demolished as well as of those still existing. The School of Architecture of McGill University will contribute an exhibit of surveys of old buildings made by its students, and holders of the Province of Quebec Studentships for the past 15 years will have their work on view, while the David Ross McCord National Museum, which has a rich and varied collection of drawings of old French buildings, has signified its willingness to contribute.

It is the hope of the promoters of this exhibition to raise sufficient funds to publish the first volume of a work of surveys and photographs of old French architecture in Canada, the beauty of which attracted attention at the British Empire Exhibition.

ELECTRIC POWER CLUB HANDBOOK

The Electric Power Club, Kirby Building, Cleveland, has recently issued the 14th edition of its handbook, which covers substantially all the standardization which has been effected in America of the manufacturing of electric motors, motor pulleys, generators, transformers, electric tools, mining and industrial locomotives, control equipment, power switchboards, and switching equipment. One detail of the work which increases its helpfulness is the inclusion of definitions, data regarding symbols and considerable general engineering information.

DETROIT AND CHICAGO EXHIBITIONS

The Thumb Tack Club, the exhibitions of which are always of interest, will hold its Fourth Annual Architectural Exhibition at the Detroit Museum of Arts, November 17 to 30 inclusive. Plans for the 1925 exhibit of the Chicago Architectural Exhibition League are now well under way, the exhibit, having been announced for opening in February in the East Wing of the Art Institute, will be sent later to the National Exhibition to be held at the Grand Central Palace in New York.

Details regarding the Detroit exhibition may be had of Clair W. Ditchy, 324 Kerchey Building; information concerning the Chicago exhibition may be had of Pierre Blouke, 721 No. Michigan Avenue.

RESULTS OF A COMPETITION

Judges in the contest conducted by Country Life for the best design for a country home for a man of moderate means have recently announced these awards:

First Prize, Alfred Cookman Cass, Philadelphia.
First Honorable Mention, Henry A. Cook, New York.
Second Honorable Mention, John Floyd Yewell, New York.
Third Honorable Mention, H. Ross Wiggs, New York.

In addition to these, for general excellence of design and plan, 12 more were favorably mentioned. These were:


The judges of the competition were John Russell Pope, Alexander B. Trowbridge and Reginald T. Townsend, the latter Editor of Country Life.

HOUSE BEAUTIFUL COVER COMPETITION

The success of the cover competitions held the last two years has led the House Beautiful to repeat this event and again to offer two prizes, one of $500 and one of $250, to successful contestants. A number of honorable mentions will also be given.

The competition will be closed February 7, 1925. Full particulars regarding the competition may be had on application from the Competition Committee, The House Beautiful, 8 Arlington Street, Boston.
Who can tell how the tenants of the American Radiator Company Building will want their space sub-divided? A few thousand feet of Telesco Partition in the store room assure each the office layout they want without an hour's delay.

Why Telesco Partition Is Standard Equipment In the American Radiator Co. Building

1. Flexible and Movable
   No matter what layout you want, flexible Telesco will make it. It can be added to, or shortened, both for length and for height, without cutting the wood. Not a nail is used in its construction.
   Screws hold it solidly in place.
   Any house carpenter can move it with his principal tool, a screwdriver.

2. Interchangeable Units
   Partition taken from one floor to another, fits together exactly.
   All units are interchangeable, and can be carried in stock or ordered from the factory at will.

3. Cabinet Finish
   No office furniture you buy will have a more beautiful finish than Telesco Partition.
   It comes in all woods and all finishes.

4. Guarantee
   Telesco will give a lifetime of service.
   It is made in the best equipped wood working plant in the East, by partition specialists.
   13 years of experience is built into each foot of it.

For further particulars, phone or write.

IMPROVED OFFICE PARTITION CO. 25 GRAND ST. ELMHURST, NEW YORK, N.Y.
CHANGING EDUCATIONAL TENDENCIES

In a recent report to Dr. Nicholas Murray Butler, President of Columbia University, the Director of the School of Architecture of Columbia, William A. Boring, records some of his impressions of the International Congress on Architectural Education, which recently concluded its sessions in London.

"American architects," Prof. Boring declares, "are both artists and philosophers, comparable in their cultural associations to those of Greece and Rome." Planning he calls the basis of architecture, saying that "training demands knowledge of construction."

"The keynote of nearly all the discussions of the Congress impressed one as insistence on expression of modern ideas of physical needs of society, and of modern methods of construction," says the report of Prof. Boring, who is Treasurer of the American Academy in Rome. "Insistence was recorded on expressing modernity. The need of beauty was not stressed, nor was the cultivation of taste made an issue. This is, no doubt, a healthy sign. The feeling that we are leaning too much on the use of good old forms which have been overworked augurs something vital, but this idea alone cannot lead us to success in architectural design."

"Knowledge of structural materials and their uses, excellent craftsmanship, even good detail, are not the broad basis of good design. To place these in the forefront of an educational scheme seems narrowing. The disposing of masses after analysis of the problem is more important. Planning in its broadest sense is the basis of architecture."

"Architecture as a profession should rank in the public mind as on a par at least with law and medicine. We cannot maintain it so by teaching the craft alone. We must turn out scholars who are masters of craft also. In America our architects of distinction move in the highest intellectual circles, as they did in Greek times. They are men of culture, of science, of good taste, and have a knowledge of building processes as well as of good design."

"Much has been said about commencing early to learn architecture, and no doubt early familiarity with good buildings is an advantage. Our experience, however, shows that college bred men who come rather late to the study of architecture are the strongest men in our school. Learning to draw early is almost essential, and facility in this method of expression is a great advantage. Some have it naturally, others must acquire it, all must master it. But the art of architecture is greater than its expression on paper. Only a limited number of aspirants reach the plane of real architects. Schools should teach such subjects and in such a way as to bring out and develop the student's natural gifts. We must recognize that a person of great talent will succeed either in or out of a school, but he will have a better basis or foundation for his work if he has had good school training. A school should give him those things as basic ideas which he can learn in practice only by going through and rising above the maze of details. Four years are not enough time for a high school graduate to reach the proficiency represented by our degree. If a curriculum includes general educational subjects, it should be longer than four years because the professional instruction alone requires at least that much time. The average student who has not advanced beyond high school grade is not sufficiently developed to properly approach the major subjects taught in a professional school. He can very well be taught by allotting six years from high school to diploma, on the plan of a combined course which begins by mixing the elementary subjects in his professional studies with his general college curriculum."

JOSEPH HOWLAND HUNT

As part of the heavy loss which the Profession has sustained during 1924 came the death on October 11, of Joseph Howland Hunt. As a son of Richard Morris Hunt he fell heir to distinguished architectural traditions, and after preliminary study at St. Mark's and Harvard he entered the Columbia School of Architecture and studied for some years at the Ecole des Beaux Arts. After considerable travel in Europe, chiefly in France and Spain, he joined his brother, Richard Howland Hunt, in continuing the practice established by their father, and in 1911 the brothers formed the firm of Hunt & Hunt.

Mr. Hunt was prominent in spheres other than that of architecture. He was a Director of the Municipal Art Society from 1916 to 1924, and President from 1919 to 1923; First Vice-president of the National Sculpture Society from May, 1921 until May, 1923; Secretary of the Fine Arts Federation from 1904 until 1916; Treasurer of the Architectural League of New York from May, 1912 until May, 1914; a member of the American Institute of Architects, Society of Beaux Arts Architects, Municipal Art Society, Architectural League of New York, National Sculpture Society; and Metropolitan Museum of Art.

Perhaps none of the personal characteristics which accounted largely for Mr. Hunt's wide circle of friends will be remembered with such pleasure as his winning geniality and the bright optimism with which he regarded life, and his unfailing consideration toward those with whom he came in contact.
Telesco Partition is so simple to erect or take apart, that any carpenter can do it, with his principal tool a screwdriver. These are the interchangeable units.

You business men, impatient of delays, stop shutting yourselves up into plaster walled prisons—stop waiting, through weeks of dirt and confusion, every time you have to change your office layout.

Build your office walls as you have built your business, with visions of expansion and a plan for the future.

**Your Visions of Growth Can Always Come True With Movable Telesco Partition**

These cabinet-finished walls, beautiful beyond belief, stand staunch as a rock, yet can be moved in a few hours’ time to make any layout you want.

The office you need is the one you will have, at no expense but a few hours of a carpenter’s time.

Telesco Partition is a wood and glass partition, screwed together, and with an extension top, making alterations unnecessary when placed under a higher or lower ceiling. It can be extended from 8’ to 13’ or more. Its interchangeable sections come in any wood or finish that you want.

For new buildings, the approximate footage required can be ordered and set in place as needed. For older buildings, you can always be sure that what you order will fit where you need it.

The testimony of thousands of users all over the country, and our catalogue, will convince you that Telesco Partition is the most economical and the most beautiful partition you can buy.

Send today for catalogue.
The Building Situation

During the first five months of this year the total value of new building construction as indicated by contracts let throughout the country has reached the unprecedented figure of over two billion dollars. The record-breaking phases of this activity have been largely confined to the Eastern district, which includes metropolitan New York, and may be attributed primarily to a vast volume of speculative building. The figures for May which, according to the F. W. Dodge Company, are 13 percent below those of May, 1923, indicate the swelling up of this unusual activity, but it is interesting to note that substantial increases over last month are shown in New England, the Northwest, and the Southeastern states.

There are in fact several definite symptoms of a radical change in the building situation which would seem to predict a trend away from speculative building and toward institutional, investment and similar types. It is quite probable that there will be a slowing up in the residential building field, because it is evident that in many of the more congested areas the housing demand is fairly well satisfied. A number of architects report a reduction of interest on the part of speculating builders and an increase of interest on the part of clients interested in the construction of institutional buildings, large private residences, office buildings and other structures for direct utility purposes. It may be said, in other words, that we are again reaching the end of the highly speculative cycle and approaching the more conservative market which usually follows.

The figures for May substantiate these statements because they indicate a sharp reduction in residential and industrial activity and a definite increase of interest in the letting of contracts for commercial, educational, religious and hospital buildings. It is quite probable that following a natural reduction of activity during the summer months there will be a sharp increase in the volume of new buildings indicated by contracts let in the fall.

Mortgage money is still plentiful, and there seems to be no decrease of confidence or interest in this class of investment, except that the large loaning interests are in many sections deliberately discouraging certain forms of frankly speculative building.

**ANNUAL CHANGES**

<table>
<thead>
<tr>
<th>1915</th>
<th>1916</th>
<th>1917</th>
<th>1918</th>
<th>1919</th>
<th>1920</th>
<th>1921</th>
<th>1922</th>
<th>1923</th>
<th>1924</th>
</tr>
</thead>
<tbody>
<tr>
<td>JAN</td>
<td>FEB</td>
<td>MAR</td>
<td>APR</td>
<td>MAY</td>
<td>JUN</td>
<td>JUL</td>
<td>AUG</td>
<td>SEP</td>
<td>OCT</td>
</tr>
</tbody>
</table>

**MONTHLY CHANGES**

<table>
<thead>
<tr>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
</tr>
</thead>
</table>

**Chart**

These various important factors of change in the building situation are recorded in the chart given here: (1) **Building Costs.** This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) **Commodity Index.** Index figure determined by the United States Department of Labor. (3) **Money Value of Contemplated Construction.** Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Co., and Engineering News-Record. (4) **Money Value of New Construction.** Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) **Square Foot Area of New Construction.** The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.
Monthly Analysis of the Trend of Building Activity

A study of the value of contracts let each month in seven important types of buildings—with graphic comparisons for the three preceding years

In order that a comparison of monthly activity may be made at a glance, the value of contracts let is presented in the above graphic charts. This information is based on data obtained through the United States Chamber of Commerce and the F. W. Dodge Corporation. The activity of each year is shown by a special line according to the key indicated at the top of the page. Thus, on each chart the activity in the form of Money Value of Contracts Let may be followed through from January, 1921, to the most recent month for which figures were available when this page was printed. Not only is a rapid comparison provided of the total activity each year, but the relative activity for each month can be estimated by referring to the index figures representing millions of dollars as shown at the left of each chart. Reports cover about three-quarters of the total building in the United States.
# BUILDING MATERIAL PRICES

Table showing average prices paid by contractors for building materials at local distributing points as of May 1, 1924. Prepared by Division of Building and Housing of the Bureau of Standards from prices secured through the Bureau of Census.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Size or Condition</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Portland Cement</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Yellow Pine No. 1</td>
<td>2&quot; x 4&quot; x 16&quot;</td>
<td></td>
</tr>
<tr>
<td>Douglas Fir No. 1</td>
<td>2&quot; x 4&quot; x 16&quot;</td>
<td></td>
</tr>
<tr>
<td>Red Cedar Shingles</td>
<td>Extra clear 16&quot; 5</td>
<td></td>
</tr>
<tr>
<td>Cypress Shingles</td>
<td>Extra clear 16&quot; 5</td>
<td></td>
</tr>
<tr>
<td>Composition Shingles</td>
<td>Crushed slate surf.</td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td>Single A 10x12</td>
<td></td>
</tr>
<tr>
<td>Hollow Tile</td>
<td>9&quot; x 12&quot; x 16&quot;</td>
<td></td>
</tr>
<tr>
<td>Cast Iron Pipe</td>
<td>4&quot; E.H. 13 lbs.</td>
<td></td>
</tr>
<tr>
<td>Steel Pipe</td>
<td>1&quot; gal.</td>
<td></td>
</tr>
<tr>
<td>Reinforcement Bars</td>
<td>1-1/2 square</td>
<td></td>
</tr>
<tr>
<td>Structural Steel</td>
<td>5&quot; 1 beams</td>
<td></td>
</tr>
<tr>
<td>White Lead Steel</td>
<td>150 lbs.</td>
<td></td>
</tr>
<tr>
<td>Zine Oxide</td>
<td>100 lbs.</td>
<td></td>
</tr>
<tr>
<td>Glass Plaster</td>
<td>5&quot; x 8&quot;</td>
<td></td>
</tr>
<tr>
<td>Linseed Oil</td>
<td>Raw in bales</td>
<td></td>
</tr>
<tr>
<td>Roofing Slate</td>
<td>No. 1 ribbon</td>
<td></td>
</tr>
<tr>
<td>Tap Paper, Roofing</td>
<td>275 lbs.</td>
<td></td>
</tr>
<tr>
<td>Roofing Shingles</td>
<td>30 lbs. per roll</td>
<td></td>
</tr>
<tr>
<td>Common Brick</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Portland Cement</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>Yellow Pine No. 1</td>
<td>2&quot; x 4&quot; x 16&quot;</td>
<td></td>
</tr>
<tr>
<td>Douglas Fir No. 1</td>
<td>2&quot; x 4&quot; x 16&quot;</td>
<td></td>
</tr>
<tr>
<td>Red Cedar Shingles</td>
<td>Extra clear 16&quot; 5</td>
<td></td>
</tr>
<tr>
<td>Cypress Shingles</td>
<td>Extra clear 16&quot; 5</td>
<td></td>
</tr>
<tr>
<td>Composition Shingles</td>
<td>Crushed slate surf.</td>
<td></td>
</tr>
<tr>
<td>Glass</td>
<td>Single A 10x12</td>
<td></td>
</tr>
<tr>
<td>Hollow Tile</td>
<td>9&quot; x 12&quot; x 16&quot;</td>
<td></td>
</tr>
<tr>
<td>Cast Iron Pipe</td>
<td>4&quot; E.H. 13 lbs.</td>
<td></td>
</tr>
<tr>
<td>Steel Pipe</td>
<td>1&quot; gal.</td>
<td></td>
</tr>
<tr>
<td>Reinforcement Bars</td>
<td>1-1/2 square</td>
<td></td>
</tr>
<tr>
<td>Structural Steel</td>
<td>5&quot; 1 beams</td>
<td></td>
</tr>
<tr>
<td>White Lead Steel</td>
<td>150 lbs.</td>
<td></td>
</tr>
<tr>
<td>Zine Oxide</td>
<td>100 lbs.</td>
<td></td>
</tr>
<tr>
<td>Glass Plaster</td>
<td>5&quot; x 8&quot;</td>
<td></td>
</tr>
<tr>
<td>Linseed Oil</td>
<td>Raw in bales</td>
<td></td>
</tr>
<tr>
<td>Roofing Slate</td>
<td>No. 1 ribbon</td>
<td></td>
</tr>
<tr>
<td>Tap Paper, Roofing</td>
<td>275 lbs.</td>
<td></td>
</tr>
<tr>
<td>Roofing Shingles</td>
<td>30 lbs. per roll</td>
<td></td>
</tr>
</tbody>
</table>

## Commodity Details

- **Common Brick**: Size unspecified, price $1.00 per thousand.
- **Portland Cement**: Size unspecified, price $1.00 per thousand.
- **Yellow Pine No. 1**: Size 2" x 4" x 16", price $0.75 per thousand.
- **Douglas Fir No. 1**: Size 2" x 4" x 16", price $0.75 per thousand.
- **Red Cedar Shingles**: Extra clear 16" x 5 to 2", price $1.50 per thousand.
- **Cypress Shingles**: Extra clear 16" x 5 to 2", price $1.50 per thousand.
- **Composition Shingles**: Crushed slate surface, price $1.00 per thousand.
- **Glass**: Single A 10x12, price $0.50 per thousand.
- **Hollow Tile**: 9" x 12" x 16", price $0.75 per thousand.
- **Cast Iron Pipe**: 4" E.H. 13 lbs. per ton, price $0.50 per thousand.
- **Steel Pipe**: 1" galvanized, price $0.50 per thousand.
- **Reinforcement Bars**: 1-1/2 square, price $0.75 per thousand.
- **Structural Steel**: 5" 1 beams, price $0.75 per thousand.
- **White Lead Steel**: 150 lbs., price $0.75 per thousand.
- **Zine Oxide**: 100 lbs., price $0.75 per thousand.
- **Glass Plaster**: 5" x 8", price $0.75 per thousand.
- **Linseed Oil**: Raw in bales, price $0.75 per thousand.
- **Roofing Slate**: No. 1 ribbon, price $0.75 per thousand.
- **Tap Paper, Roofing**: 275 lbs., price $0.75 per thousand.
- **Roofing Shingles**: 30 lbs. per roll, price $0.75 per thousand.

## Price List

- **Building Board**: 24", 27", 30" x 16", price $0.75 per thousand.
- **Bale**: 20", 23", 26" x 16", price $0.75 per thousand.
- **Bevel**: 23", 26", 29" x 16", price $0.75 per thousand.
- **Cedar**: 24", 27", 30" x 16", price $0.75 per thousand.
- **Douglas Fir**: 24", 27", 30" x 16", price $0.75 per thousand.
- **Plastic Shingles**: Crushed slate surf., price $1.00 per thousand.
THE FOREUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

The editors of The Architectural Forum have been fortunate in obtaining the co-operation of the following recognized experts who constitute The Forum Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries.

SUBJECTS AND COMMITTEE PERSONNEL

HOTEL DESIGN AND EQUIPMENT

DANIEL P. RITCHEY
Known in the hotel field as the "hotel doctor," Mr. Ritchey, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

HEATING AND VENTILATING

CHARLES A. FULLER
Consulting, Heating and Ventilating Engineer
Member of firm of Griggs & Myers, New York. Widely experienced in the field of heating and ventilating design for office buildings, institutions and industrials; specialist on investigation and report work on mechanical equipment for new and old plants.

ELECTRICAL SCIENCE

WILLIAM L. GOODWIN
Vice-president of the Society for Electrical Development
This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

SAFETY ENGINEERING

S. J. WILLIAMS
Secretary and Chief Engineer, National Safety Council, Chicago
Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

FARM SCIENCE

FREDERICK WALTER IVES, B.S., M.E.
Professor and head of Department of Agricultural Engineering, Ohio State University. Consulting Agricultural Engineer, Columbus, Ohio.
Specialist in land drainage, soil improvement, surveys, farm arrangement for economical production, purchase of equipment and economical layout of farm buildings with special reference to interior arrangement.

FINANCE

WALTER STABLER
Comptroller, Metropolitan Life Insurance Co.
The largest institution in the United States making loans for building construction. Mr. Stabler's knowledge of building investments covers the country and is widely recognized.

REAL ESTATE

C. STANLEY TAYLOR
Widely experienced in real estate development and financing, real property law, architecture, engineering and building construction. Financial and Business Editor of The Architectural Forum.

FIRE PROTECTION ENGINEERING

J. D. HUNTER
Chief Engineer,Marsh & McLennan, Insurance Brokers, New York
Specialist in insurance engineering as applied to building design, construction and equipment.

BUILDING MANAGEMENT

J. CLYVERDALE CUSHMAN
President, Cushman & Wakefield, Inc., Real Estate, New York
Mr. Cushman's firm has participated largely in the promotion and operation of many large New York buildings. His specialty is the management of office buildings.

GAS SERVICE AND UTILIZATION

NILS T. SELLMAN
Service Engineer, American Gas Association
A specialist in problems pertaining to gas service and its use in all classes of buildings and industries.

ADDRESS INQUIRIES TO COMMITTEE MEMBERS, CARE THE ARCHITECTURAL FORUM, 383 MADISON AVENUE, NEW YORK
THE FORUM DIGEST

A SURVEY OF IMPORTANT CURRENT ARTICLES ON BUILDING ECONOMICS AND BUSINESS CONDITIONS AFFECTING CONSTRUCTION

The Editors of this Department select from a wide range of publications matter of definite interest to Architects which would otherwise be available only through laborious effort.

AMERICAN CONSTRUCTION COUNCIL

A Statement Issued Through Its President,

Franklin D. Roosevelt

ONE year ago a general condition, characterized by nearly everyone's trying to build at once, existed throughout most of the country. The resulting congestion created a serious situation which caused the American Construction Council, in cooperation with other agencies, to sound a note of warning and suggest that speculative and unnecessary building be suspended until the supply of labor and materials could catch up. This view of the situation came to prevail throughout the country, and the volume of construction and the price levels did not rise to the breaking point.

As one of the results of this steadying of the industry, the Council was able, last fall and early winter, to urge all those desirous of building at that time to undertake such work so far as possible at an early date in order to benefit by the usual slackening of demand for materials and labor during the winter months. It was hoped in this way to avoid a situation similar to those that have existed at this season of the year. This does not point to any danger for the country as a whole, although in certain localities this may not hold true, particularly in the vicinity of New York.

It is the Council's recommendation at this time that investors and all others interested in construction work developments closely, particularly for the next few months. If an artificial boom presents itself, great care must be exercised in regard to speculative and other unnecessary construction until the danger is passed. Winter building and especially the building of maintenance and repair work to the slack season, which is repeatedly urged by the Council, will do much to help a situation of this kind and at the same time lengthen the working period, thus extending the active season without overlapping or congestion. If on the other hand there should be an early slackening or recession of work, proper measures should be taken to bring out those kinds of construction which otherwise should be deferred until the period of greatest activity is normally passed. The future course of building construction costs is somewhat problematical. At present they are at a high level in spite of the mistaken attempt to decrease such costs by poor construction.

One very serious situation confronting the country requires special attention. A large percentage of present-day building throughout the country is distinctly inferior in quality and unsound in financing. Thousands of structures now under way or recently erected, especially in housing, are subject to such rapid deterioration that within ten years' time, sometimes less, they will be practically valueless. This rapid depreciation coupled with unsound methods of promotion must entail enormous loss on the principal investment, besides entailing serious expense and heavy additional burdens for repairs and maintenance after a few years. A still further burden is added by the higher rates of insurance due to the use of inferior materials and poor construction. All these make for higher rentals.

This situation results from the activities of irresponsible groups, found in many quarters as to the requirements of earnings at abnormal interest rates. They find buyers because of the general ignorance existing in many quarters as to the requirements of investors and purchasers are usually those who can least afford to be victimized. Every element of the industry must bear its proportionate share of the blame for the vice, practices not infrequently found in building projects today, and for permitting within its jurisdiction practices that do not measure up to proper standards.

Further, the business of building and a general adoption of the principles of better building the Council has appointed a special and fully representative committee of men vitally interested in the desirable ends to be gained. This committee will make a survey of conditions and recommend corrective measures as deemed necessary.

The Council's program for the training of apprentices and the development of improved craftsmanship in the building trades is calculated to bear fruit. Quality of workmanship and sufficient numbers of workers are very vital to high-grade construction. Training apprentices is a national problem and cannot be solved merely by treatment in isolated spots without regard to the other sections of the country and national needs as such. The American Construction Council, as the national body representative of all elements in the construction industry and the public and cooperating with the various localities and branches of the industry, has in its apprenticeship work a most effective means for furthering the principle of better building in addition to other desirable ends to be gained through apprentice training. The foregoing measures combined with the Council's help in reducing the seasonal variations in building operations with their bad effects on quality of construction, particularly during the rush periods of the year, and its assistance in the promotion of organizations in the different localities of the country by bringing together the various elements of the industry in these sections as a part of its national movement to promote responsibility and intelligent cooperation in all of their aspects, furnish the basis for securing very practical results to industry generally and to
the public which is chiefly concerned.

This statement was somewhat amplified a little later by Mr. Roosevelt who is quoted as saying:

"The danger of confusion such as confronted us a year ago at this time is not to be feared at present. There is no denying the fact that business as a whole has received a setback, although the construction industry has not suffered so far. It is un

thinkable, however, that business generally can slump off for any protracted period without the construction industry's feeling the effect. The next three months should reveal just what is before us. Either there will be a turn for the better in business generally, or else things will go on much along the present line. This will give the construction industry an opportunity to guide itself properly and set its house in order."

In the course of a discussion it was suggested by one of the men present that with the tendency as pointed out by Mr. Roosevelt, it would be the height of folly to keep on paying higher wages to induce the largest amount of building labor. This led E. J. Russell, a St. Louis architect, to review a pact not to unsettle conditions by asking for still higher wages. The material men, he said, had, however, advanced prices.

BUILDING INDUSTRY IN SOUND CONDITION, AUTHORITIES DECLARE

Despite Tendency Toward Over-Expansion in New York,
Continued Large Volume for Nation Is Predicted

EXCEPT in New York the present indications do not point to any likelihood of over-expansion in the building industry. Thus is the situation summed up by the Guaranty Survey published by the Guaranty Trust Company of New York, in which it is shown that building conditions are generally sound. "In spite of the high level of building activity which has been maintained for more than two years," says the rest of the Survey, "it is evident that an appreciable part of the shortage resulting from the relative inaction of the war period is larger in the rest of the nation. This is refreshing, since it seems to be a most common mistake to base national conclusions on local conditions prevailing in New York, building retrenchment is well under way in the south. Curtailment of building operations in the southern states is favorable and healthy development after five years of activity, during which new construction records have been successively piled up. Unless the last six months of 1924 bring forth unexpectedly large totals of building, the south will probably show a 10 to 20 per cent decrease this year, as compared with 1923.

"Retrenchment of building operations in the south, and for that matter in several sections of the United States, means that rents and rentals are being placed upon an even more stable basis than in the past. Such retrenchment is a safeguard against possible over-building and does not mean that the need for new buildings has been satisfied. It merely means that at the present levels of building costs, and rentals, property owners and financing institutions have deemed it prudent to guard against any possible decline in demand. As the Guaranty Survey points out, should rents decline there would immediately be a fresh increase in demand for housing space, which would stabilize the building situation and operate to check a further decline. Thus we see that the building situation in the national state of flux and creates within itself the cures for the ills it sets up. Upon this principle we can erect a structure of confidence in building as the second largest industry in the country, and as one of the principal stabilizers and stimulators of business and trade prosperity.

As one analyst recently pointed out, this means that unless stopped by some great national misfortune, the building industry will continue to maintain and promote American prosperity . . . as it has helped maintain and promote American prosperity in 1923 and 1922. A more encouraging sign of the times could hardly be imagined."

Further comment on the Guaranty Survey was made by Thomas S. Holden, statistician of the Dodge Corporation, who says, "Our own analysis of the situation is in substantial agreement with the Survey. With the rather glaring exception of New York, the speculative element does not appear to be dominant in building operations generally. After a winter of unusually large activity and the usual seasonal increase this spring, there is now a gradual reaction in progress, which comes at just about the right time to check the recent boom from going beyond reasonable bounds. We note with particular interest the remarks in the article concerning the reaction of rent levels and construction costs on building demand. Should there be a sufficient slowing up of building activity to bring about decreases in either of these important factors, it is very likely that a new demand, now dormant, will assert itself. For this reason, building volume, from temporary retrenchment, is urged to continue at a very good rate for a long time to come."

The New York Building Congress has recently issued an announcement that the continuation of retrenchment of building plans, it will
BUILDING costs in the United States, in the midst of what economists have agreed in the country's greatest construction boom, have doubled in the last ten years, according to an announcement issued by the National Industrial Conference Board. In its announcement the board summarized the results of a study into the national building situation, which shows that costs of labor and of materials stand at exactly the same increased levels for the first time since 1920. While in New York the building crafts receive high wages, last month they were the highest in the country in only 10 out of 23 trades. Graphic charts reveal the nation-wide character of rising costs, not alone in wages, but in all materials entering into building. Other cities reporting uniformly high wages are Chicago, Cleveland, Pittsburgh, St. Louis, and Houston, Texas. The investigation covered the leading American cities, and took in all the crafts and the leading elements in building material. Wage figures were based on government and other reports annually in May from 1914 to 1920, and monthly since August of that year. Among the separate trades, plasterers and bricklayers receive the bulkiest pay envelopes in practically all cities. Bricklayers get $1.25 an hour in 50 cities, and plasterers in 44 cities, while in St. Louis the rate is $1.75 an hour. Lathers and masons get $1.50 an hour in Houston, Texas, the same rate being received by roofers and hoisting engineers in New York. Masons get $1.25 an hour or more in 28 cities, lathers in 12 cities, hoisting engineers in seven cities and roofers in four. Gasfitters and steamfitters in Houston, plumbers in Houston and Pittsburgh, ornamental iron workers in Cleveland, marble setters in Philadelphia and tile setters in Shreveport, La., all get $1.37 1/4 an hour. In New York the trades best paid next to those cited are carpenters, cement finishers, painters, pipe coverers, sheet metal workers, and structural iron workers. These get $1.31 1/4 an hour. Although their wages are less, steamfitters' helpers and laborers get the highest wages in the country in New York. The hodcarrier, once figuring prominently as the butt of cartoon and caricature, now counts himself among the aristocracy of labor, according to the board's survey, for he earns up to $1.25 an hour, and the average earned by all hodcarriers is more than 90 cents an hour, in the cities surveyed. The same sustained high levels are also being enjoyed by plumbers, electricians, carpenters and sheet metal workers.

Prices of building materials until recently more than kept pace with the rise in wages, the announcement reveals. It shows that from 1915 to 1920 the prices of materials increased more than twice as much as wages. In 1921, however, they fell to approximately the same levels as wages, and during the past year the present 100 per cent increase over 1914 in both was established. Cast iron pipe is the most expensive commodity in construction, as compared with 1914 wholesale costs, showing an increase of 306 per cent. Other materials which have more than tripled in cost in the past ten years are Douglas fir, lime, white pine, white lead and turpentine. Sheet copper and copper wire show the least advances over 1914 of only 4 and 5 per cent.

The general trend of building costs, taken as a whole, shows a tendency downward for materials, and a rising tendency in wages. There was nothing adduced in the survey to indicate appreciable reductions in building costs in the near future, conditions as a whole being considered.

REPORT ON PLUMBING

These pages have presented many notes on the progress of the movement toward simplification and standardization in building practice. The Department of Commerce Report on Recommended Minimum Requirements for Plumbing in Dwellings and Similar Buildings results from a widespread feeling that present state and municipal code requirements are in some respects unnecessarily restrictive and that consistent labor and materials could be effected by scientific investigation of the burdens on such systems, and their performance under normal use. It is well known that the codes of different localities vary widely and that practices forbidden in some places are successfully employed elsewhere. The benefits of uniform requirements in permitting simplification of plumbing supplies are also generally recognized. The development of plumbing code requirements and practice in installation of plumbing systems have been almost entirely in the hands of master plumbers and journeymen. Architects and builders have been too likely to disregard the importance of this feature of constructing and it follows that no careful investigation has ever been made of the laws governing operation of plumbing systems. The report contains a recommended code and, in addition, a complete report of the experiments at the Bureau of Standards, showing how the committee arrived at its recommendations.

The results indicate that present customary assumptions in the design of plumbing are considerably on the side of safety and point the way to substantial economies in future work of this sort. The committee recommends that 3-inch soil stacks be permitted in systems for dwellings; that the running or house trap now required in many cities be eliminated; that a distance of not to exceed 5 feet be permitted between traps and ventilation pipes. As a result of tests with complete household systems it was found possible to cut down on the expensive vent piping now considered necessary. Economies possible through complete adoption of the committee's recommendations are estimated at from $50 to $100 for a 2-story dwelling with the usual number of fixtures, depending on the nature of requirements now obtaining in a given locality anywhere.
Consideration was given to the much discussed subject of plumbing code administration. The report states that while the relation of defective plumbing to disease is much less direct than formerly believed, the subject in all its branches is not yet fully appreciated and the possibility of direct access of vermin from the interiors of plumbing systems to those of buildings is sufficiently objectionable to justify public regulation of plumbing work. The committee recommends a competent official plumbing inspector under jurisdiction of public safety authorities, to examine and approve plans and specifications of plumbing systems and take such other measures as will make his control of plumbing work effective. The advisability is suggested of substituting certificates of competency for the present licensing system and of permitting owners to install plumbing personally, provided this is done in accordance with the code and subject to official permit and inspection.

In addition to the recommended plumbing code an extensive report by the Bureau of Standards giving the proceeds and results of experiments with plumbing systems carried on for over two years at that institution is contained which presents a considerable amount of data and discussion interpreting the results of experimental work and showing how the committee arrives at its recommendations for code revision. There are chapters on the lack of uniformity and agreement in present plumbing codes and on the desirability of simplification of plumbing supplies and fixtures. The report discusses the relation of plumbing to health and the controversies involved in licensing of plumbers, and plumbing inspection as a means of code enforcement. The appendices describe recent developments in theory of corrosion of metals and investigations of the diffusion of gases in unventilated pipes.

The report contains 260 pages of text and 100 illustrations, mostly given in connection with the report of experiments at the Bureau of Standards. It may be obtained from the Superintendent of Documents, Washington, for 35 cents per copy. Remittances should be by currency or money order.

THE LOCATION OF LIGHT SOURCES

When planning a lighting system, according to the Electrical Record, the importance of the proper location of outlets is frequently not given sufficient consideration. Too often, the possibilities of the cost is uppermost in mind, which sooner or later will result in an inadequate and generally unsatisfactory installation. It must be remembered that once the outlets are installed, the lighting units, sizes of lamps, etc., may be changed without great expense. However, if the room is to be used for any purpose which demands a change in the outlets merely because they are not sufficient in number or properly placed, considerable expense and annoyance may be experienced. Proper location of outlets throughout a building when the lighting system is first installed will therefore economically provide for future needs, however remote the need may seem at the time when the lighting system is planned.

"The interiors of most buildings are divided into bays by columns or ceiling beams. Symmetrical location of the lighting units in each bay is a very convenient and desirable method of placing the outlets. Starting with the proper location of the units in one bay, the plan can be extended through the entire building. Should there be no structural divisions by either columns or beams, a plan can be laid out to scale and arbitrary divisions then established."

"Outlets should not be spaced at a greater distance than 1½ times the mounting height from the floor. Thus if the unit is mounted 10 feet from the floor, the maximum distance between the units will be 15 feet. Spacing at a greater distance will result in spotty illumination. Furthermore, the angular direction of light will be such that annoying and even dangerous shadows may result. While a 15-foot spacing is permitted at a 10-foot mounting height, it should be remembered that better illumination will result from closer spacing. A rule-of-thumb method of spacing and mounting distances which will suit a large majority of cases is this: Mount the units 10 feet from the floor, space them 10 feet apart. Equip the units with 200-watt lamps and a level of illumination of approximately 10-foot candles will result. Where the proportions of the rooms or bays are such that 10-foot mounting height and 10-foot spacing distance will not be exactly suitable, a slight variation in either dimension will not materially affect the resulting illumination."

"Particular problems occasionally arise in which the commonly used method of spacing and mounting height will not be the best practice. In a room which is to be used for rough work, where a high level of illumination is not necessary, it might not be economical to provide the usual number of units per bay. Nevertheless, it may be desirable to arrange the units so that in the case the room is to be used later for work requiring closer visual application and consequently more light, it can be secured without too great an expense."

"In a room having square bays measuring 20 feet on a side, the ordinary layman may deem one unit per bay sufficient. That would mean a spacing distance of 20 feet between units which would be permissible if the rooms were odd, but in those cases the units could be mounted at least 14 feet above the floor. The spacing distance would not exceed 1½ times the mounting height. However, it is always desired that there be more than one unit per bay be installed in areas of this size so that light will reach the work from a sufficient number of directions to insure freedom from shadows, which might exist otherwise."

Locating Outlets

"In one particular instance the ceiling height is 13 feet which is too low for a mounting height which will permit 20-foot spacing. The rule-of-thumb method will readily apply in this case, 10-foot distance between the ceiling and 10-foot spacing distance which will provide four units in each bay. If, however, four units per bay are required, the 10-foot mounting height and two units per bay will provide fairly satisfactory illumination. This arrangement will allow for future installation of two additional units per bay to provide more illumination for more exacting work. Should it be found necessary to divide up the room into smaller rooms, each individual room will be fairly well lighted without change in the lighting system. If there are benches along the outside walls extra units may be installed between those units comprising the outside rows to provide a higher level of illumination on these benches."

"In a building where the bays are rectangular instead of square, a different arrangement of units will be necessary. In the case of rectangular bays which are 16 x 20 and the ceiling height is 11½ feet. Here again one unit per bay will not provide uniform illumination on account of the low ceiling. If there are benches along the outside walls, four units per bay spaced 8 x 10 feet apart would provide the most desirable illumination and should be recommended wherever possible."

"In buildings where this layout is employed, there will be only two units in the bay nearest the wall when the bays across the end of the room are even in number. The distance from the units to the wall will be 8 feet and if there are benches along that wall, additional lighting should be provided. Where the number of bays is odd, the bays at both outside walls will have four units which will provide adequate illumination for those working on the benches."

When it is remembered how much the excellence of the lighting depends upon proper placing of outlets, it will be realized how important it is that care be given to their part in a lighting system.
The Mid-Year Building Situation

The record of building contracts placed during the first six months of 1924 now being available makes it possible to analyze the first half of what promises to be the largest building year in the history of the construction industry. Running through figures of the F. W. Dodge Company covering 36 Eastern states and adding the estimated amount of construction in the rest of the United States, there have been started in this country during the first six months of 1924 contracts amounting to over two and a half billion dollars. This is a record figure, being a 10 per cent increase over the first half of 1923.

The accompanying chart shows a monthly comparison of building activity in the 36 Eastern states covered by the Dodge figures. It will be noted that the total amount of money invested in new buildings has been greater in each month of 1924 than in 1923, except in the month of May. The month of June has shown a good record, contracts having been started in these 36 states amounting to nearly $400,000,000, which is a decline of a little less than 8 per cent from the May figures and an increase of almost 5 per cent over those of June of last year.

An important fact must be recognized, however, that the record figure for the first six months of this year is not representative of construction throughout the country. The New York and Southeastern districts have shown substantial increases, with record-breaking activity in New York City. In New England the increase has been moderate; the Middle Atlantic states have just equaled last year’s record, and the Pittsburgh, Central Western and Northwestern districts have shown substantial declines in activity. All the important classes of construction, except the industrial class, have participated in the increase in construction volume. Industrial construction has declined considerably. Recapitulating the six months' record, the important building groups were thus represented:

Forty-eight per cent of the total for residential buildings; 15 per cent for public works and utilities; 13 per cent for commercial buildings; 8 per cent for educational buildings, and a little under 8 per cent for industrial buildings. Figures quoted are from the statistics of the F. W. Dodge Company.

### ANNUAL CHANGES

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1923</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1924</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MONTHLY CHANGES

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1923</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1924</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These various important factors of change in the building situation are recorded in the chart given here: (1) Building Costs. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) Commodity Index. Index figure determined by the United States Department of Labor. (3) Money Value of Contemplated Construction. Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Co., and Engineering News-Record. (4) Money Value of New Construction. Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) Square Foot Area of New Construction. The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.
Monthly Analysis of the Trend of Building Activity

A study of the value of contracts let each month in seven important types of buildings—with graphic comparisons for the three preceding years.

In order that a comparison of monthly activity may be made at a glance, the value of contracts let is presented in the above graphic charts. This information is based on data obtained through the United States Chamber of Commerce and the F. W. Dodge Company. The activity of each year is shown by a special line according to the key indicated at the top of the page. Thus, on each chart the activity in the form of Money Value of Contracts Let may be followed through from January, 1921, to the most recent month for which figures were available when this page was printed. Not only is a rapid comparison provided of the total activity each year, but the relative activity for each month can be estimated by referring to the index figures representing millions of dollars as shown at the left of each chart. Reports cover about three-quarters of the total building in the United States.
### BUILDING MATERIAL PRICES

Table Showing Average Prices Paid by Contractors for Building Materials at Local Distributing Points as of June 1, 1924. Prepared by Division of Building and Housing of the Bureau of Standards from Prices Secured through the Bureau of Census

#### Commodities and Sizes

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Size or Condition</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common brick</td>
<td></td>
<td>1,000</td>
</tr>
<tr>
<td>Portland cement</td>
<td></td>
<td>1,000</td>
</tr>
<tr>
<td>Yellow Pine No. 1</td>
<td>Dimensions 2x4-16&quot;</td>
<td>SISIE</td>
</tr>
<tr>
<td>Red Cedar Shingles</td>
<td>Extra Clear 16&quot;</td>
<td>5 to 2</td>
</tr>
<tr>
<td>Cypress Shingles</td>
<td>Extra Clear 16&quot;</td>
<td>5 to 2</td>
</tr>
</tbody>
</table>

#### Pitching, Laying, and Finishing

<table>
<thead>
<tr>
<th>Pitch</th>
<th>Haver</th>
<th>New</th>
<th>Pitta</th>
<th>Scarab</th>
<th>Ball</th>
<th>Wash</th>
<th>Rich</th>
<th>Fair</th>
<th>Co-lambia</th>
<th>11/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.00</td>
<td>20.50</td>
<td>25.00</td>
<td>18.25</td>
<td>23.50</td>
<td>17.00</td>
<td>25.00</td>
<td>21.00</td>
<td>21.00</td>
<td>17.00</td>
<td>16.50</td>
<td>17.00</td>
<td>17.00</td>
</tr>
</tbody>
</table>

#### Wire

<table>
<thead>
<tr>
<th>Wire</th>
<th>Gauge</th>
<th>Size</th>
<th>lb. per ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>0.125</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>0.125</td>
<td>60</td>
</tr>
</tbody>
</table>

#### Cement

<table>
<thead>
<tr>
<th>Cement</th>
<th>1,000 ibs. per bag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20.00</td>
</tr>
</tbody>
</table>

#### Lime

<table>
<thead>
<tr>
<th>Lime</th>
<th>1,000 lb. per bag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>22.50</td>
</tr>
</tbody>
</table>

#### Plaster

<table>
<thead>
<tr>
<th>Plaster</th>
<th>1,000 lb. per bag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>33.50</td>
</tr>
</tbody>
</table>

#### Stone

<table>
<thead>
<tr>
<th>Stone</th>
<th>1,000 lb. per bag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>17.00</td>
</tr>
</tbody>
</table>

#### Brick

<table>
<thead>
<tr>
<th>Brick</th>
<th>1,000 lb. per bag</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10.00</td>
</tr>
</tbody>
</table>

#### Pipe

<table>
<thead>
<tr>
<th>Pipe</th>
<th>100 ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; galv.</td>
<td>10.00</td>
</tr>
</tbody>
</table>

#### Structural Steel

<table>
<thead>
<tr>
<th>Structural Steel</th>
<th>100 lb.</th>
<th>lbs. per ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fab. 6&quot; beam</td>
<td>3.50</td>
<td>15.00</td>
</tr>
</tbody>
</table>

#### Roofing

<table>
<thead>
<tr>
<th>Roofing</th>
<th>1,000 sq. ft.</th>
<th>lbs. per roll</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 lbs. per roll</td>
<td>2.00</td>
</tr>
</tbody>
</table>

#### Insulation

<table>
<thead>
<tr>
<th>Insulation</th>
<th>1,000 sq. ft.</th>
<th>lbs. per roll</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 sq. ft.</td>
<td>1.00</td>
</tr>
</tbody>
</table>

#### Roofing Nails

<table>
<thead>
<tr>
<th>Roofing Nail</th>
<th>1,000 sq. ft.</th>
<th>lbs. per roll</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 sq. ft.</td>
<td>1.00</td>
</tr>
</tbody>
</table>

#### Tar Paper

<table>
<thead>
<tr>
<th>Tar Paper</th>
<th>1,000 sq. ft.</th>
<th>lbs. per roll</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 lbs. per roll</td>
<td>2.00</td>
</tr>
</tbody>
</table>
THE FORUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

The editors of The Architectural Forum have been fortunate in obtaining the cooperation of the following recognized experts who constitute the Forum Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries.

SUBJECTS AND COMMITTEE PERSONNEL

HOTEL DESIGN AND EQUIPMENT

DANIEL P. RITCHIE

Known in the hotel field as the "hotel doctor," Mr. Ritchie, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

HEATING AND VENTILATING

CHARLES A. FULLER

Consulting, Heating and Ventilating Engineer

Member of firm of Griggs & Myers, New York. Widely experienced in the field of heating and ventilating design for office buildings, institutions and industrials; specialist on investigation and report work on mechanical equipment for new and old plants.

ELECTRICAL SCIENCE

WILLIAM L. GODWIN

Vice-president of the Society for Electrical Development

This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

SAFETY ENGINEERING

S. J. WILLIAMS

Secretary and Chief Engineer, National Safety Council, Chicago

Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

FINANCE

WALTER STABLER

Comptroller, Metropolitan Life Insurance Co.

The largest institution in the United States making loans for building construction. Mr. Stabler's knowledge of building investments covers the country and is widely recognized.

REAL ESTATE

C. STANLEY TAYLOR

Widely experienced in real estate development and financing, real property law, architecture, engineering and building construction. Financial and Business Editor of The Architectural Forum.

FIRE PROTECTION ENGINEERING

J. D. HUNTER

Chief Engineer, Marsh & McLennan, Insurance Brokers, New York

Specialist in insurance engineering as applied to building design, construction and equipment.

BUILDING MANAGEMENT

J. CLYDSDALE CUSHMAN

President, Cushman & Wakefield, Inc., Real Estate, New York

Mr. Cushman's firm has participated largely in the promotion and operation of many large New York buildings. His specialty is the management of office buildings.

GAS SERVICE AND UTILIZATION

NILS T. SELLMAN

Service Engineer, American Gas Association

A specialist in problems pertaining to gas service and its use in all classes of buildings and industries.

Address inquiries to committee members, care The Architectural Forum, 383 Madison Avenue, New York
A SURVEY OF IMPORTANT CURRENT ARTICLES ON BUILDING ECONOMICS AND BUSINESS CONDITIONS AFFECTING CONSTRUCTION

The Editors of this Department select from a wide range of publications matter of definite interest to Architects which would otherwise be available only through laborious effort.

Analysis of Mid-Year Building Conditions

When analyzing the contract records for the first six months of 1924 it is also of interest to consider the variations of building costs. The variation of the cost trend line as estimated by The Architectural Forum will be found in the chart on the first page of this Service Section. Another record cost fluctuation is maintained by Engineering News-Record in the form of an index number based on variations in the costs of steel, lumber, cement and common labor. This index would naturally be higher and vary more than a composite index including many more factors, but it is quite interesting to examine its trend for the first six months of 1924 as compared with those first six months of 1923. Accompanying this article will be found a chart showing the cost variation under an index figure built up of the four factors already mentioned.

Just how much building activity may be anticipated in the second half of 1924 is problematical, but general conditions indicate that while the crest of the wave of speculative building is past, a number of substantial deferred projects will come into the market. This forecast is justified from reports in many architects' offices, which indicate that many high class projects are being reconsidered by owners who were frightened out of the market by increasing costs and by the great demand of material and labor due to construction of a more speculative nature. The general building situation throughout the country may be gauged to a certain extent by these opinions received from Federal Reserve Banks in the various districts as reported July 1:

New York District

"Contracts for building construction awarded during May in 36 states were 13 per cent smaller than in April and 3 per cent smaller than in May a year ago, according to the F. W. Dodge Company. The decline from April resulted chiefly from a decrease of 35 per cent in the New York District, following the very large reduction during April in building permits issued in New York City. For all other reporting sections awards in May were practically the same as in April.

"The decline in the New York District was due largely to a further decrease in residential awards, which accounted for 49 per cent of the total construction in May, compared with an average of 60 per cent in the preceding four months. Both in this district and in other reporting districts, however, residential awards continued to be larger than last year.

"Notwithstanding the considerable decline in May, the monthly average of total contracts awarded throughout the country during the first five months of this year was 12 per cent larger than for the corresponding period of last year. A diagram given here, comparing the average monthly contract awards both by sections of the country and by types of construction, indicates the importance of residential building, particularly in the New York District, in these totals."

Philadelphia District

"Declining building activity in May and June, probably slightly less than in similar period last year. Demand for building materials is not as strong as it was in the spring season of 1923, and in general building projects are not as large in size or in general of as high a quality as during the past year. There is a fair supply of skilled and unskilled workers in the building industries and in manufacturing plants. It is anticipated that there will be a considerable development of activity in the fall of 1924."
New England District

"Contracts awarded in May show a considerable increase over April and a higher total than in May of 1923. Business and industrial building was considerably less in May of last year, but residential and institutional building has shown an increase."

Minneapolis District

"Prospective building activity, as evidenced by the valuation of building permits granted in 18 cities of this District, was 12 per cent greater in May than in April. The number of permits granted was about the same in both months, and as a result the average building permit, which furnishes a good test of the state of business confidence, increased in size, although normally there is little change at this time of year. As compared with May a year ago, both the number and valuation of permits granted during May were more than one-fifth smaller.

The city real estate situation in this District on June 1, according to the semi-annual report of the National Association of Real Estate Boards, was in a state of equilibrium between supply and demand. In the map to be issued May 31, cities reported for, there was neither a shortage of structures, either for residential or business purposes, nor an over-built condition. Minneapolis was the outstanding exception to this statement. The Minneapolis Real Estate Board reported an over-built condition in small stores and duplexes and no shortage of other types of buildings."

Cleveland District

"The feeling that the building industry is slackening continues to be quite general. Then, too, activity appears to be centered in the completing of old contracts rather than in the starting of new.

"May operations, however, continued at a high rate, nine representative cities in this District showing an increase in the valuation of permits issued over the same month last year, as against four which showed a decrease. The total valuation of May permits in the 13 cities was $2,124,846 higher than for May, 1923, or an increase of 9.9 per cent. A slight improvement in weather conditions and the customary seasonal increase were contributing factors in this greater activity.

"In the metropolitan district of Cleveland the May advance was very evident. As compiled by the Builders' Exchange the record for building permits issued in the month of May within the city proper shows 1,890 certificates approved calling for an expenditure of $26,288,515 in contrast with $24,650,750 for the corresponding five months in 1923. For individual operations, the total for which permits were issued during the five months this year was 7,380 as against 6,560 in the same period last year, indicating that the variety of building projects is being maintained.

"The story of the suburbs, however, is not so good, a decrease being evidenced for the seven leading suburbs from a total of $16,582,093 for the first five months of 1923 to $14,017,247 for the corresponding period this year. It would appear from this that the home-building program is less vigorous than a year ago. The loss in the suburbs is compensated for by the gain in the city proper, so it may be said that the present year, thus far, is running even with its predecessor.

"A decrease is shown in the five months comparison for the District, the valuation of buildings permitted for in 13 cities in the first five months of this year being $1,489,241 or 1.5 per cent less than for the same period a year ago.

"A more comfortable situation exists in the supply of materials than was the case last year. In some trades there is a slight surplus of workmen, while in others the call is about even with the supply. Wages have not decreased, but it is reported by contractors that a considerable improvement is noted in efficiency on the part of the various workmen. The Association of Building Employers reports that the construction industry has enjoyed a peaceful year to date. Many new agreements, some of them extending for two or three years, have been negotiated. In most instances the new rates are higher than the old, but whereas last year bonuses were paid in most of the trades, this year the rates are generally being adhered to. Commensurate labor is reported plentiful, and the supply of skilled labor is equal to the demand with the possible exception of bricklayers and plasterers.

"The costs of some building materials have remained steady while others have shown slight reductions. Favorable weather has improved the demand to some considerable extent."

St. Louis District

"The value of building permits issued in the five largest cities of the District during May fell sharply below the record total of April, but was only 3.8 per cent under the aggregate of May, 1923. Building operations in the large centers continued at an active pace during the period under review, with residential construction still occupying an important place in the general activity. Reports from the smaller towns and rural districts in the south reflect extensive home-building, particularly of small residences. Road-building has been badly hampered by excessive rainfall, but it is planned to push forward the highway construction programs as soon as weather conditions will permit. The trend of prices of building materials was slightly downward, and many manufacturers have caught up with their orders, with some reporting moderate accumulations."

Kansas City District

"The reports from cities in the Tenth District indicate that 1924 was the second best year in building since 1919, and probably for all time. During the first five months of the current year a total of 13,826 permits were issued in 18 cities for buildings to cost $39,741,533. These totals indicate a decrease of 10.4 per cent in the number of permits and a decrease of 21.5 per cent in the estimated cost of construction as compared with the returns for the first five months in 1923, which was the banner year in building history. The 1924 figures, however, exceed those for the five months period in all other years, which is indicated here:

<table>
<thead>
<tr>
<th>Cities</th>
<th>Permits</th>
<th>Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1924</td>
<td>18</td>
<td>$39,741,533</td>
</tr>
<tr>
<td>1923</td>
<td>18</td>
<td>50,622,426</td>
</tr>
<tr>
<td>1922</td>
<td>19</td>
<td>37,027,576</td>
</tr>
<tr>
<td>1921</td>
<td>18</td>
<td>26,118,500</td>
</tr>
<tr>
<td>1920</td>
<td>18</td>
<td>38,977,090</td>
</tr>
<tr>
<td>1919</td>
<td>16</td>
<td>17,176,414</td>
</tr>
</tbody>
</table>

"The May returns from the cities show a large volume of building in progress, although the month's totals of permits issued and estimated cost did not come up to the record for the

Chart Showing Volume of Building Contracts by Classes

From Survey of Current Business, June, 1924
fifth month of last year. Unfavorable weather conditions and some unset-
ments in the market for building materials were among the factors 
which had retarded building in these cities. A large number of important 
buildings are in prospect for the sum-
mer and fall season. 

Texas District

"Activity in building operations continued to decline during May, as 
is evidenced by the decline in building permits issued at 11 of the larger 
cities of the Eleventh Federal Re-
serve District. That this decline was 
general throughout practically the en-
tire district is shown by the fact that 
Dallas and Fort Worth were the only 
cities showing an increase in building 
permits valuations as compared to the 
previous month, and Beaumont and 
Dallas were the only cities showing 
increases as compared to May, 1923. 
There was a decline of 14.9 per cent 
in the valuation of permits issued 
during May as compared to April, and 
11.1 per cent as compared with May, 1923. 
The number of permits issued declined 16 per cent as com-
pared to April, and 14.8 per cent as compared with May, 1923. 
There were 2,620 permits having a valua-
tion of $6,231,771 issued during May, 
which compared with May, 1923, and 3,118 permits is-
 sued during the previous month hav-
ing a valuation of $7,319,650, and 
3,053 permits with a valuation of 
$7,010,064 issued during the corre-
sponding month of 1923.

For the third consecutive month the total valuation of permits issued 
during the period since January 1 
was less than that of those issued 
during the corresponding period of 
the previous year, there being a de-
crease of 4.5 per cent as compared with 
the same period of 1923.

San Francisco District

"A definite, though slight, down-
ward trend in building activity is in-
dicated by figures of building per-
mits issued in principal cities of this 
District during recent months. In 
May, for the second consecutive 
month, the value of prospective 
building permits was less than in 
the preceding month, and, for the 
third consecutive month, was less 
than in the corresponding month a 
year ago. The decline for May, 1924, 
compared with May, 1923 (18.7 per 
cent), was greater than estimated 
decline of building costs over the 
same period. The United States De-
partment of Labor index number of 
building materials prices stood at 180 
in May, 1924 (1913 prices=100). 
This is 1.9 per cent lower than a 
month ago, and 10.2 per cent less 
than a year ago (1923 peak). The 
Aberthaw index number of the total 
cost of constructing a reinforced con-
crete factory building stood at 199 on 
June 1, 1924 (100 in 1915), compared 
with 200 on May 1, 1924, and 207 on 
June 1, 1923, the most recent peak. 
The general consensus of opinion 
seems to indicate that the coming 
fall will introduce another period of 
considerable activity in the building 
field, and that 1924 will at least equal 
the record of 1923 in the amount of 
money spent in this country for new 
building construction.

PLACING STRUCTURAL RESPONSIBILITY

The joint meeting of architects, 
engineers, and contractors held 
in St. Louis recently for the purpose 
of discussing the relationship and 
responsibility of the architect and 
gineer in the matter of safety in 
building construction, says the Ameri-
can Contractor, points to a tendency 
in these proceedings that is of pro-
found interest to contractors.

"During the last year several con-
ventions of contractors have dis-
cussed the unwillingness of architects 
to assume full responsibility for their 
structural designs and for the accu-
racy of their plans. At the con-
vention of the Associated Building 
Engineers' Council held February 
5 at Grand Rapids, N. J. Kennedy 
asailed those incompetent architects 
who allowed the whims of owners to 
dictate the specification of unfit 
materials and building equipment, 
who turned out defective or incom-
plete plans and specifications, or who 
insisted on having the contractor 
submit shop drawings of sections of 
a structure which the architect felt 
himself incapable of designing.

"Mr. Kennedy pointed out that 
when contractors have to hire drafts-
men to correct poor drawings; when 
they are forced to design and coördi-
nate structures from incomplete 
sketches while the architect refuses 
to surrender any of his authority 
over the direction of the job and at 
the same time refuses to assume full 
responsibility in that direction, a 
situation exists which is gradually 
forcing the contractors to enter archi-
tectural and engineering practice.

"In view of this and similar ad-
verse criticism the action of the archi-
tects and engineers of St. Louis rep-
resents a timely move. Certainly 
if any action is to be taken that will 
fix firmly on the architect and 
gineer the responsibility for design,
HOW PROPER INSULATION CUTS FUEL COSTS
ONE-THIRD

TODAY, science is helping the home lover to plan and build his home," says The Permanent Builder. "Many are the ways he can cut costs and save in material, space, and labor. Science is really helping to solve the problem because science has discovered so many useful and necessary things for the modern home.

"A few years ago it would have sounded preposterous to say that a man could build a home to save one-third of his fuel bill. This is not a general statement, but a reality. To cut fuel costs no more to build a home that will save fuel, than one that will not.

"The coal required to heat a house is only that necessary to supply the heat loss through the walls, doors, and windows, due to the difference in temperature between the inside and the outside of the house. Heat is lost from a building in two ways; first, by infiltration, or air leakage, and second, by conduction through the walls, doors and windows. Infiltration losses vary with the building construction, and with the wind velocity outside. A small amount may take place through the walls, but the greater losses are through the cracks and openings around the doors and windows. In the average house it may be assumed that the leakage amounts to one complete air change per hour, and that to take care of this, heat must be supplied each hour to replace the temperature of air entering from the outside to 70 deg. Fahrenheit. It is logical, of course, that infiltration losses may be partly compensated for by the ventilation, but, as a rule, the air walls, doors, and windows, at the proper place, nor in the right quantity for ventilation, and the heat so carried away is a total loss.

"Most every building material offers some resistance to the passage of heat and cold; even a thin metal sheet enclosure is somewhat better than nothing. Bricks, wood and plaster have some value, if of sufficient thickness. The construction commonly used in houses is accepted, only because the householder does not realize that it could be made much better.

"Some years ago, various forms of insulating materials came on the market but they were actually used only in climates which demanded insulation. That is why the word insulation is so common today with the builders in the great northwest.

"Obviously, if a house in the northwest needs to be insulated, to keep out the cold, why should not a house built in the sunny south also be insulated to keep out the heat? Isn't it worth as much to be cool and comfortable in your own home in summer as to be comfortable and save fuel in winter?

"Now insulating lumber is in wide use in the American and most foreign markets and has met with universal approval. The difference in temperature of that is this insulating lumber is manufactured from sugar cane fiber after the juice has been extracted. Economically, this cane fiber, or 'bagasse,' as it is called in the south, was used only for a low-grade fuel. It was tough and cumbersome, would not rot, and simply had to be disposed of each year. Now this cane fiber is utilized in making insulating lumber. Tests by building engineers show that it is one of the poorest conductors of heat known, and, while it is not as effective as modern materials which are known, its efficiency for insulation. Careful tests which have been made of the passage of heat through the materials commonly used show that their values are not even known. The pressed technically in terms of British thermal units per square foot of surface through one inch of thickness of the material in one hour of each degree difference in temperature. Thus, a piece of insulating lumber 1 foot square and 1 inch thick will permit the passage of 0.3 B. t. u. in one hour, if the temperature on one side is one degree greater than on the other side. With 10 degrees difference the heat loss will be ten times as great, or 3.3 B. t. u. If the insulation is only one-half as thick, the conduction will be twice as great.

"It is very easy to insulate a house with insulating lumber. It is applied directly to the outside of the walls of a frame house, entering the studs by the studs, or the studs are plastered over to a base for plaster. In a locality where average prices prevail, the outside layer in place will cost less than sheathing and paper in place. The inside layer will cost somewhat more than the lath but will save some labor and material on the plastering, but the insulation always costs nothing. The two layers combined offer values that will practically solve the cost of the items they replace. The owner gets his walls thoroughly insulated at no additional cost above that of uninsulated construction. The attic also should be insulated. One layer of insulating lumber may be put on top of the attic joists. The saving of the lath will largely offset the cost of one layer. Thus the principle of ice house construction is applied to the modern home with the same results.

"It has truthfully been said that insulating lumber has the insulating value of cork. Because insulating lumber replaces so many other materials in construction today, it is rapidly becoming one of the most important factors in home building. When considered, it is estimated that approximately one hundred million tons of coal are used each year for heating purposes, it is apparent what a place insulating lumber has made for itself in home building.

TO COORDINATE BUILDING MAINTENANCE WITH NEW CONSTRUCTION WORK

THE Philadelphia Building Congress is the first organization of its kind to officially appoint a committee on the Coordination of Maintenance and Repairs with New Construction Work.

D. Knickerbacker Boyd, Architect, explains the activities of the committee which are to secure the cooperation of owners, managers and occupants in making a survey of the maintenance and repair requirements of buildings and structures in Philadelphia, to compile and classify such data and to make studies to determine the periods when labor on new construction work can be most conveniently put in, in every way possible maintenance work and alterations in existing structures may be done at such times as conflict least with new construction requirements and make for greater continuity of employment.

The Boston Building Congress and then the New York Congress, which in May increased its membership over 1,000 in a week, have been making similar recommendations. Now, however, comes official action by the Building Owners' and Managers' Association, which are to secure the cooperation of owners, managers and occupants in making a survey of the maintenance and repair requirements of buildings and structures in Philadelphia, and to compile and classify such data and to make studies to determine the periods when labor on new construction work can be most conveniently put in, in every way possible maintenance work and alterations in existing structures may be done at such times as conflict least with new construction requirements and make for greater continuity of employment.

The action is being taken to help reduce the unemployment problem when winter comes again. Seasonal unemployment has been one of the evils in the labor situation. Large numbers of men, by the nature of their profession or trade, are employed only a part of the year. A brief survey has disclosed that much repair work, now crowded into the summer months, could be done just as easily and perhaps more efficiently during the slack winter period.
The Building Situation

Reports for the month of July indicate that the total construction activity has still continued at a higher rate than last year. According to the F. W. Dodge Corporation’s statement for July, the total of contracts let amounted to $347,184,300, which is 10 per cent less than the figure for June, but still 10 per cent over the figure for July of last year.

The changing character of construction activity is to be noted. Activity in the highly speculative types of construction is lessening, and this affects the residential totals, bringing them more nearly to a normal relative percentage. Perhaps a good reason for lessening in such activity is the fact that mortgage interests are deliberately discouraging speculative apartment house construction in sections where it is evident that the housing demand has been fairly well met. The speculator also finds a weaker market for the sale of properties built primarily on a rental income basis, and the result is that a number of high class residential buildings, public buildings and industrial building projects are coming into the market, anticipating a better situation in purchasing materials and in labor conditions. The building material market generally has felt the seasonal decreasing of demand, and throughout the country available stocks are being enlarged.

The mortgage market continues firm, with a steady flow of investment and mortgage bonds and evident willingness on the part of mortgage companies to underwrite all reasonable building operations on a fairly liberal basis. It is anticipated that building totals will be made up of larger individual contracts during the remainder of this year, and that, as forecast by The Architectural Forum in January, this will unquestionably prove to be another $5,000,000,000 building year.

From the viewpoint of architects the fall season should show a considerable increase in the number of buildings under planning for early construction. The passing of speculative activity opens the market for a better class of construction, and an increasing measure of stabilization in building costs has a tendency to bring delayed projects into active development, a condition which is also favored by increasing confidence in general business circles.

**ANNUAL CHANGES**

<table>
<thead>
<tr>
<th>Year</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1925</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1924</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MONTHLY CHANGES**

<table>
<thead>
<tr>
<th>Year</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1925</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1924</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These various important factors of change in the building situation are recorded in the chart given here: (1) Building Costs. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) Commodity Index. Index figure determined by the United States Department of Labor. (3) Money Value of Contemplated Construction. Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and Engineering News-Record. (4) Money Value of New Construction. Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) Square Foot Area of New Construction. The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.
THAT billiards is a PAYING investment in a fine hotel is well attested by the experience of the management of the Hotel Cleveland. Read the letter reproduced above.

As makers of the world’s finest equipment for both billiards and bowling, we gladly offer to architects planning hotels, apartment houses and similar buildings our advice and assistance regarding plans for billiard rooms and bowling alleys.

Anyone interested in such assistance may secure our full co-operation, without cost or obligation, by addressing a request to our Chicago or any branch office.

The BRUNSWICK-BALKE-COLLENDER Company
Branch houses in the principal cities in the United States and Canada
623-633 South Wabash Avenue, CHICAGO
The Building Situation

The reports of contracts let and plans filed throughout the country, as based on figures of the F. W. Dodge Corporation, indicate a definite increase of building activity this fall, similar to that of last year. An examination of the chart below discloses several interesting facts. It will be noted that the value of plans filed turned suddenly upward in August, indicating a revival of interest, due probably to a decrease in the cost of building and to the fact that with the dying off of speculative activity, the stocks of building materials became larger so that a better opportunity is now offered for those who contemplate erecting buildings of an investment or a utility nature.

The value of contracts awarded in August is $354,442,700, which is an increase over July of nearly 3 per cent, and an increase over August of last year of nearly 19 per cent. The total construction started in the United States during the first eight months of 1924 is valued at approximately $3,500,000,000, which is an increase of 11 per cent over the corresponding period of 1923. This increase has been largely in the states east of the Mississippi, and particularly on the North and Middle Atlantic seaboard.

The value of contemplated new work reported in August amounted to $506,386,100. During the year ending September 1, the excess reported contemplated work over contracts awarded was estimated at 53 per cent. This is said to be the lowest percentage of excess since the war, as 50 per cent is a normal excess figure. This may be an indication that the amount of deferred construction which may be expected to go ahead is not large at the present time. In the Middle Atlantic states, Southeastern states and Central West, it may be expected, however, that a considerable amount of deferred construction will go ahead in quantities sufficient to show a fair degree of activity this fall.

In general, business conditions seem to have developed on a sound and encouraging basis which creates a situation promising considerable building activity. In the Business & Finance Section of this issue of The Forum will be found a more detailed analysis of the present building situation. There will be given reasons why it is logical to believe that architects' offices will soon be busier than at present.
Monthly Analysis of the Trend of Building Activity

A study of the value of contracts let each month in seven important types of buildings—with graphic comparisons for the three preceding years

**KEY:** 1921; 1922; 1923; 1924

<table>
<thead>
<tr>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>120</td>
<td>140</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
</tr>
<tr>
<td>100</td>
<td>120</td>
<td>140</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
</tr>
<tr>
<td>100</td>
<td>120</td>
<td>140</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
</tr>
<tr>
<td>100</td>
<td>120</td>
<td>140</td>
<td>160</td>
<td>180</td>
<td>200</td>
<td>220</td>
<td>240</td>
<td>260</td>
<td>280</td>
</tr>
</tbody>
</table>

**HOSPITALS**

**CHURCHES**

**COMMERCIAL**

**RECREATIONAL**

**SCHOOLS & COLLEGES**

**INDUSTRIAL**

**RESIDENTIAL—Including Hotels & Apts.**

**JULY 1924 CONTRACTS**

In order that a comparison of monthly activity may be made at a glance, the value of contracts let is presented in the above graphic charts. This information is based on data obtained through the United States Chamber of Commerce and the F. W. Dodge Corporation. The activity of each year is shown by a special line according to the key indicated at the top of the page. Thus, on each chart the activity in the form of Money Value of Contracts Let may be followed through from January, 1921, to the most recent month for which figures were available when this page was printed. Not only is a rapid comparison provided of the total activity each year, but the relative activity for each month can be estimated by referring to the index figures representing millions of dollars as shown at the left of each chart. Reports cover about three-fourths of the total building in the United States.
## BUILDING MATERIALS

Table showing average prices paid by contractors for building materials at local distributing points as of August 1, 1924. Prepared by Division of Building and Housing of the Bureau of Standards from prices secured through the Bureau of Census.

### BUILDING MATERIALS

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Size or Condition</th>
<th>Commodity</th>
<th>Size or Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Brick</td>
<td>1,000 lbs.</td>
<td>Fitchburg</td>
<td>Albany</td>
</tr>
<tr>
<td>Portland Cement</td>
<td>Excl. of containers</td>
<td>New York</td>
<td>Rochester</td>
</tr>
<tr>
<td>Yellow Pine No. 1</td>
<td>Dimension 2x4-16' BISEE</td>
<td>Pittsburg</td>
<td>Buffalo Akron</td>
</tr>
<tr>
<td>Douglas Fir No.</td>
<td>Dimension 2x4-16' BISEE</td>
<td>Columbus</td>
<td>Cleveland Toledo</td>
</tr>
<tr>
<td>N. Carolina Pine No.</td>
<td>Dimension 2x4-16' BISEE</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Common Board No. 1</td>
<td>1x4</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Douglas Fir V. C. No. 2</td>
<td>1x4-16'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Red Cedar Shingles</td>
<td>Extra clear 12° 3 to 5</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Composition Shingles</td>
<td>Crushed slate surfaced</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Gypsum Plaster Board</td>
<td>4' x 8'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Building Stone</td>
<td>4' x 8'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Crushed Stone</td>
<td>4' x 8'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Wire Nails</td>
<td>1 lb.</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Window Glass</td>
<td>Single A 10&quot; x12&quot;</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Hollow Tile</td>
<td>4&quot; E.H. 13 lbs. per ft</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Steel Pipe</td>
<td>1&quot; galv.</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Reinforcement Bars</td>
<td>4&quot; square</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Structural Steel</td>
<td>5% Fe 6&quot; Beam</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>White Lead</td>
<td>Dry</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Zinc Oxide</td>
<td>Am. green lead free</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Gypsum Plaster</td>
<td>Neat</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Roofing Slate</td>
<td>No. 1 ribbon</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Tarpaper, Roofing</td>
<td>July 75 lbs. per roll</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Rosin Stained Shingles</td>
<td>50 lbs. per roll</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
</tbody>
</table>

### TABLE

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Size or Condition</th>
<th>Commodity</th>
<th>Size or Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Brick</td>
<td>1,000 lbs.</td>
<td>Fitchburg</td>
<td>Albany</td>
</tr>
<tr>
<td>Portland Cement</td>
<td>Excl. of containers</td>
<td>New York</td>
<td>Rochester</td>
</tr>
<tr>
<td>Yellow Pine No. 1</td>
<td>Dimension 2x4-16' BISEE</td>
<td>Pittsburg</td>
<td>Buffalo Akron</td>
</tr>
<tr>
<td>Douglas Fir No.</td>
<td>Dimension 2x4-16' BISEE</td>
<td>Columbus</td>
<td>Cleveland Toledo</td>
</tr>
<tr>
<td>N. Carolina Pine No.</td>
<td>Dimension 2x4-16' BISEE</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Common Board No. 1</td>
<td>1x4</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Douglas Fir V. C. No. 2</td>
<td>1x4-16'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Red Cedar Shingles</td>
<td>Extra clear 12° 3 to 5</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Composition Shingles</td>
<td>Crushed slate surfaced</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Gypsum Plaster Board</td>
<td>4' x 8'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Building Stone</td>
<td>4' x 8'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Crushed Stone</td>
<td>4' x 8'</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Wire Nails</td>
<td>1 lb.</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Window Glass</td>
<td>Single A 10&quot; x12&quot;</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Hollow Tile</td>
<td>4&quot; E.H. 13 lbs. per ft</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Steel Pipe</td>
<td>1&quot; galv.</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Reinforcement Bars</td>
<td>4&quot; square</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Structural Steel</td>
<td>5% Fe 6&quot; Beam</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>White Lead</td>
<td>Dry</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Zinc Oxide</td>
<td>Am. green lead free</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Gypsum Plaster</td>
<td>Neat</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Roofing Slate</td>
<td>No. 1 ribbon</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Tarpaper, Roofing</td>
<td>July 75 lbs. per roll</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
<tr>
<td>Rosin Stained Shingles</td>
<td>50 lbs. per roll</td>
<td>Columbus</td>
<td>Columbus Waterlo</td>
</tr>
</tbody>
</table>
THE FORUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

The editors of The Architectural Forum have been fortunate in obtaining the cooperation of the following recognized experts who constitute the Forum Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries regarding any of these subjects.

SUBJECTS AND COMMITTEE PERSONNEL

HOTEL DESIGN AND EQUIPMENT
Daniel P. Ritchey
Known in the hotel field as the "hotel doctor," Mr. Ritchey, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

HEATING AND VENTILATING
Charles A. Fuller
Consulting, Heating and Ventilating Engineer
Member of firm of Griggs & Myers, New York. Widely experienced in the field of heating and ventilating design for office, institutional and industrial buildings; specialist on investigation and report work on mechanical equipment for new and old plants.

ELECTRICAL SCIENCE
William L. Goodwin
Vice-president of the Society for Electrical Development
This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

SAFETY ENGINEERING
S. J. Williams
Secretary and Chief Engineer, National Safety Council, Chicago
Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

FINANCE
Walter Stabler
Comptroller, Metropolitan Life Insurance Co.
The largest institution in the United States making loans for building construction. Mr. Stabler’s knowledge of building investments covers the country and is widely recognized.

REAL ESTATE
C. Stanley Taylor
Widely experienced in real estate development and financing, real property law, architecture, engineering and building construction. Financial and Business Editor of The Architectural Forum.

FIRE PROTECTION ENGINEERING
J. D. Hunter
Chief Engineer, Marsh & McLennan, Insurance Brokers, New York
Specialist in insurance engineering as applied to building design, construction and equipment.

BUILDING MANAGEMENT
J. Clydeballe Cushman
President, Cushman & Wakefield, Inc., Real Estate, New York
Mr. Cushman’s firm has participated largely in the promotion and operation of many large New York buildings. His own specialty is the management of office buildings.

GAS SERVICE AND UTILIZATION
Nils T. Sellman
Service Engineer, American Gas Association
A specialist in problems pertaining to gas service and its use in all classes of buildings and industries.

Address inquiries to committee members, care The Architectural Forum, 383 Madison Avenue, New York
IS ALUMINATE CEMENT THE COMING MATERIAL?

As Developed in Europe It Has Exceptional Advantages—It is Quick to Harden, Impervious to Chemical Action and Unaffected by Low Temperatures—Saving in Forms Compensates for Higher Cost

ALUMINATE cement has two exceptional qualities that differentiate it sharply from all other hydraulic binders," says Henry S. Sprackman in the Contract Record and Engineering Review. "These are the rapidity with which it attains maximum strength and its resistance to chemical attack by sea water and waters containing sulphate of the alkaline earths in solution. We will consider first the remarkably high strengths of aluminate cement at short-time periods, that is, at 24 hours, 3 days and 7 days. In this development of high strength at early periods, aluminate cement is as superior to Portland cement as Portland cement is to natural cement, or natural cement is, in turn, to lime. Aluminate cement concrete is made by mixing the cement, two sand, four stone or gravel, will give at 24 hours a resistance to compressive stress of 2,000 pounds per square foot; at 3 days, 5,000 pounds per square foot; at 7 days, 6,000 pounds. I am not referring now to strengths developed in laboratory tests, but to the strengths you can safely count on getting in the work using average aggregate and workmanship.

"What does such early strength mean to the worker in concrete? It means that a concrete road can be opened to traffic 48 hours after pouring. For example, at Le Teil, France, a section of concrete road poured between 8 p.m. Saturday and midnight was opened to traffic early Monday morning, and carried a 5-ton tractor hauling heavy loads without marking the concrete. At Lausanne, Switzerland, a section of concrete road poured between 8 p.m. Saturday and midnight was opened to traffic 48 hours after the concrete was poured. A 12-ton tractor passed over the bridge the first day without the slightest injury. These early strengths also mean that in reinforced concrete work you can alter a story one day and use the forms again 3 days after. This was done in the construction of a roundhouse for locomotives at Bethune, France, for the Railroad Company of the North. L. Pfeulbeuf, the contractor, used aluminate cements. The design called for the construction of 150 concrete chimneys, each 23 feet high, and weighing 4,500 pounds, carried by a reinforced concrete roof and girders which had a 20-foot span. The forms for both roof and chimneys were removed 48 hours after pouring. Using Portland cement, the forms and supports had to remain in place 20 days. It is proper, however, to say that French Portland cements are slower to harden than American.

"In reporting the use of aluminate cement for the construction of a reinforced concrete building at Chateau Roux, Indre, France, M. Blanchett said that the forms were removed in 48 hours from the beams and 3 days from the girders, and that a saving of two-thirds of the form lumber that would have been required for doing the work with Portland cement was made.

For Rapid Alteration Work

"Aluminate cement also makes possible the use of reinforced concrete in the structural alterations of occupied buildings. In such work, aluminate cement can be used with the same facility as structural steel. Perret Freres, of Paris, and M. Roux, Indre, France, were entrusted by the Bank La Societe Marcellaise de Credit with the alteration of a five-story building on Rue Aubert, Paris. It was proposed to substitute for a maze of small rooms and passages on the ground and second floors, the large reception halls and offices of a modern bank. In visualizing the problem, you must realize that the partitions were all masonry, extending up from the cellar and carrying the superimposed load of the three upper floors. To make the task more difficult, it was stipulated that the work must be carried on without interrupting the labor of the office force working in these two stories, and without inconvenience to the tenants who occupied the three upper floors. Structural steel columns and girders could not be used because it would have been impossible to get them into the building and put them into place without interfering with the occupancy of the two lower floors. Reinforced Portland cement concrete could not be used because it would have necessitated the leaving of the forms and supports in place for several weeks in the office space required for the employees. Recourse was had to aluminate cement, which met the requirements of this difficult situation in every particular. Forms were removed in 48 hours, and, by reason of its greater strength, a considerable reduction was made in the area of columns and depth of girders. "It will probably be interesting to you at this point for me to discuss the relative difference in cost between aluminate and Portland cement concretes. According to the best information I can obtain, aluminate ce-
ment in France sells at the mills for between two and a half and three times the price of Portland cement. This means an average on the average $1 per barrel for handling, that is, railroad freights, hauling, etc., that aluminate cements cost delivered on the work from two to two and a half times the price of Portland cement. For example, if Portland cement cost $2 f.o.b. mill, and aluminate cement $5, with the addition of a handling cost of $1, the cost delivered on the job will be $3 for Portland cement and $7 for aluminate cement, which is two and one-third times the cost of Portland. At first thought, such a difference may seem prohibitive, except in special cases where the time element or resistance to chemical attack makes the question of cost negligible. Such, however, has not proved to be the case in France. The best evidence of this is that it is to-day impossible to buy aluminate cement anywhere in Europe for immediate delivery. All the mills manufacturing aluminate cement are overbooked. It is more difficult to obtain exact cost data than information regarding the behavior on the work. Therefore, I can quote only general statements, though doubtless they are entirely representative.

"Mr. Blanchett writes: 'One soon sees, without mentioning the quickness of the process, that the economy realized in the forms makes up and more for the higher price of aluminate cement.'

"Mr. Louis Peulabufef writes: 'I believe that aluminate cement will be the cement for the future for reinforced concrete work, when its price will permit one to employ it in a more general fashion. Nevertheless, for the present, in spite of its high price, I do not accept the economy in forms that it permits one to make, there will be found a large compensation for its cost.'

Edwin C. Eckel, who made a study of the aluminate cement industry in France during the past summer, writes in Concrete of December, 1923: 'The apparent disadvantage, its necessarily high cost per barrel, is only apparent, for aluminate cement whatever its cost per barrel makes a cubic yard of concrete harden in place at a lower cost than any other cement, owing to the economics possible in proportions, labor, forms and time.'

"Following the same line of thought as Eckel, Prof. Paris, of Lausanne, has made a series of calculations which show that at current prices in Switzerland, the cost per 100 pounds per square inch resistance at 28 days in concrete is less for aluminate cements than for Portland. At shorter periods, 3 days, for example, the cost of 100 pounds per square inch of resistance to compression with aluminate cement is one-third that used with Portland.

No Longer Experimental

"Aluminate cement is no longer regarded as new or experimental in France. It is considered competitive with Portland in much work, and, in addition, has a recognized though constantly expanding field of its own. In the extreme French port of Venice, in which the specification of aluminate cements for work is considered almost mandatory. They are used in the largest work; for example, the tunnel at Brauss required some 75,000 barrels, and practically all the cement work used in Paris for street work is now aluminate cement.

"Aluminate cement, however, has a quality of development of high strength at early periods, that is resistance to chemical attack of waters carrying sulphate salts in solution. Extended laboratory research and results of use have proved beyond question of doubt that Portland cement is not stable in sea water; yet many Portland cement concrete structures exposed to the action of sea water have been and are giving good service. This resistance to the destructive action of sea water is not due to any particular virtue of the cement used but to the protective action of the aggregate which prevents the sea water from coming in contact with the cement. Any Portland cement concrete, exposed to sea water, is sufficiently porous to allow the sea water to penetrate it, will inevitably be destroyed by chemical action, and what is true of sea water is equally true of ground water impregnated with sulphate salts of the alkaline earths. Therefore, the importance of resistance to chemical attack is not confined solely to marine structures. Indeed, the ground water of many of our large cities is contaminated by sulphur. I have known the sulphur content of the ground water to prevent concrete from hardening and in deep foundations for two or three weeks. What the ultimate effect of this sulphur on the durability of the foundation will be is not difficult to predict.

"In Europe, owing to the character of their coasts, there is much port and harbor work which requires a greater use of concrete in sea water than is common with us. For this reason, the failure of cement in sea water has been given more careful study than with us. As early as 1853, on account of the numerous reports of the deterioration of marine structures, the French Society for the Encouragement of National Industry offered a reward for the best study on the cause of failure of cement in sea water. And for the past 75 years European engineers, chemists, and cement manufacturers have been seeking to find a cement that would be indecomposable in sea water, and it was the continued search for such a cement that led ultimately to the development of the aluminate cement industry in France.
ing Tile Association, disclosed the usual variations in sizes and weights of tile, as generally exist in commodities of allied industries.

Thirty-six different sizes, each made in a wide variety of weights, showed the prevailing uneconomical policy in production, and the preliminary conference asked that a general conference be called with properly accredited representatives of the distributing and consuming groups.

It was understood that the last four units of tile as listed under "Standard Partition Tile" should remain in this classification until a course of tests now in progress at the Bureau of Standards should determine whether they would be classed as floor tile of standard weights.

The conference offered the recommendation to become effective January 1, 1924, and be subject to revision one year from that date, the simplification thus to be kept abreast of advances in practice, while it progressively eliminates the waste of needless or obsolete weights.

In accordance with the unanimous action of the joint conference of representatives of manufacturers, distributors, and users, the United States Department of Commerce, through the Bureau of Standards, recommends that the number of sizes of hollow building tile be reduced to those given in the tables included here.

### Standard Load-Bearing Wall Tile

<table>
<thead>
<tr>
<th>Size (inches)</th>
<th>Weight (pounds per square foot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 in. by 12 in.</td>
<td>15</td>
</tr>
<tr>
<td>4 in. by 12 in.</td>
<td>22</td>
</tr>
<tr>
<td>6 in. by 12 in.</td>
<td>28</td>
</tr>
<tr>
<td>8 in. by 12 in.</td>
<td>38</td>
</tr>
</tbody>
</table>

The price must therefore probably always be high—too high perhaps to compete with the readily made Portland. But the peculiar advantages of the alumina cement make it a most interesting possibility.

### CODE OF LIGHTING SCHOOL BUILDINGS ADOPTED

With the approval of the Code of Lighting School Buildings as an American Standard by the American Engineering Standards Committee, a demand for definite, detailed and up-to-date specifications for lighting school buildings on the part of the architects of school buildings, school superintendents and school boards and regulatory bodies has been met. The present code is the result of a thorough revision of the code prepared and issued in 1918 by the Illuminating Engineering Society. A number of changes and improvements in lighting practice itself, made since the 1918 code was issued, have made necessary its revision to conform to the best modern practice.

Considerable interest was manifested in the original code, as is evidenced by the fact that it was adopted shortly after its publication by the New York State Department of Education as a guide in planning the artificial lighting of school buildings in that state. The Industrial Commission of Wisconsin used it as a basis for the preparation of the Wisconsin School Lighting Code, effective in 1921. Provisions of the code have been incorporated in building codes in several states and municipalities.

The new code differs from the old chiefly in being more specific. Illumination standards have been raised to conform to modern practice; specifications of definite requirements under the glare rule have been included; a limiting ratio of maximum intensity to minimum intensity in classroom has been included in the rule relating to distribution of artificial light; reflection factors have been specified in the rule relating to color and finish of interiors; the rule relating to emergency lighting has been amplified, and a rule relating to the illumination of blackboards has been added.

The rules themselves are clear and concise, occupying less than four pages. They are followed by a non-technical discussion of the importance of compliance with them and by directions where available illustrations are accompanied by simple diagrams.

The present code was developed and adopted by unanimous action of a large and representative sectional committee made up of the principal representative of the technical, educational and industrial organizations concerned, acting under the leadership of the Illuminating Engineering Society, and the American Institute of Architects. Further information can be obtained from the American Engineering Standards Committee, 29 West 39th Street, New York.
SPECIFICATIONS FOR GLAZING GLASS

INFORMATION which is expected to prove of value to the purchaser of glazing glass in obtaining the quality of glass he pays for is contained in a set of U. S. Government specifications recently issued by the Bureau of Standards, Department of Commerce. A classification of such glasses is given, together with complete data regarding the sizes and thicknesses of glass obtainable. A method of examining glass is given which enables one to identify the grades commonly marketed.

Perfect glass, the Bureau says, is practically never made, but many defects can be prevented without destroying the utility or the good appearance of the window, provided the glass is properly selected so that slight imperfections are unnoticeable. Glazing glass of various qualities is selected from this point of view.

In the preparation of these specifications assistance and advice were secured from manufacturers and distributors and from representatives of the American Institute of Architects, the Federal Supervising Architect's office, and from sash and door manufacturers' associations. The information so gathered is expected to prove useful to consumers and helpful in protecting the honest manufacturer and dealer against those who misrepresent the quality of the glass they are selling.

These specifications are contained in Circular No. 164 of the Bureau of Standards. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington. The price is 5 cents.

OUTLOOK GOOD FOR REST OF YEAR

THE passing of Labor Day marks the beginning of a new construction period, and it is therefore advisable to look to the future of the industry for the remaining four months of the year. The summer months usually show a slight letdown in the industry, but September invariably brings a resumption of activities. Conditions are more stable now than they have been any time this year. No marked wage fluctuations either upward or downward are in sight. The material market is sailing on an even keel, and there is every reason to believe that there will not be much deviation from present prices during the rest of the year. Many investors have been waiting for assurance that building costs have been stabilized, and undoubtedly the next few weeks will bring out a large number of projects which were held up for a large part of the season. Conditions in other lines are rapidly improving. The American farmer is in a better position today than for some time past. It is estimated that the value of crops this year exceeds that of last year by $70,000,000. "Four lines of manufacturing, namely, iron and steel, motors, textile, and leather," says the National Building Executives' Association of Building Trades Employers, "are rapidly returning to normal conditions. Money is plentiful, and interest rates are low. Taking all these various phases into consideration, it becomes evident that for the remainder of 1924, at least, conditions in construction will be good."

SIMPLIFICATION OF MATERIAL

THE Division of Simplified Practice of the U. S. Department of Commerce has rendered a valuable service to the construction industry through the simplification and standardization of building materials.

Among the items already standardized are these:

<table>
<thead>
<tr>
<th>Reduction Item</th>
<th>in Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal lath</td>
<td>125 to 24</td>
</tr>
<tr>
<td>Hollow building brick</td>
<td>36 to 10</td>
</tr>
<tr>
<td>Face brick</td>
<td>39 to 1</td>
</tr>
<tr>
<td>Blackboard slate</td>
<td>90 to 3</td>
</tr>
<tr>
<td>Hot water tanks</td>
<td>120 to 14</td>
</tr>
</tbody>
</table>

DEFINITION OF BRICK

At the instigation of the Common Brick Manufacturers' Association of America, the National Vigilance Committee, which is a department of the Associated Advertising Clubs of the World, issued a bulletin in which it defines the word brick "as a solid burned clay product of dimensions approximating 2 1/4 x 3 3/4 x 8 inches." In commenting on the bulletin issued by the Vigilance Committee, the weekly newsletter of the Common Brick Manufacturers' Association says, "The bulletin will establish with publications throughout the country the principle that no commodity should be advertised as brick, using the word alone, unless it is made of burned clay, and that all advertising for substitutes should clearly set forth that the building unit is made of some other material."

This action will probably adjust one of the points of difference which have long vexed the business world.

BUILDERS STUDY EMPLOYMENT CONDITIONS IN MILWAUKEE

The Master Builders Association of Wisconsin recently published a chart showing the percentage of time worked and the yearly earnings of the major building trades in Milwaukee, based on the 1924 rate. The chart shows that setters are employed more days per year in Milwaukee than any other trade, their average being 90 per cent of the maximum number of working days. Structural iron workers,stonemasons, bricklayers are at the bottom of the list, being employed only 60 per cent of the time; carpenters, painters, plasterers, lathers, plumbers and electricians are employed 85 per cent; steam fitters, sheet metal workers and concrete finishers are employed 75 per cent; marble setters, slate roofers and composition roofers are employed 70 per cent; bricklayers 65 per cent and common laborers 80 per cent.

Based on the 1924 rate, the earnings of tile setters are higher than those of any other trade. The order of the rest of the trades is as follows: plasterers, second; laborers and plumbers, third; electricians, fourth; bricklayers, fifth; marble setters, sixth; carpenters, seventh; steam-fitters, eighth; painters, ninth; slate roofers, tenth; sheet metal workers, eleventh; cement finishers, twelfth; structural iron workers, thirteenth; composition roofers, fourteenth; hoisting engineers, fifteenth; laborers, sixteenth.

These figures afford basis for study.

WHOLESALE PRICES OF PLUMBING FIXTURES

WHOLESALE prices of standard plumbing fixtures for a 6-room house have been collected by the Department of Commerce from reports of 12 representative manufacturers and wholesale houses. The average price reported by these firms on six standard fixtures, net to retailer without freight, are given here for 1913 and for each month since May, 1924, together with an index number based on 1913 as 100, representing the relation of the aggregate price of the six fixtures to their 1913 prices.

<table>
<thead>
<tr>
<th>Month</th>
<th>Bath tubs</th>
<th>Wash basins</th>
<th>Water closets</th>
<th>Sinks</th>
<th>Laundry tubs</th>
<th>Range</th>
<th>Ind. (relative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1913</td>
<td>$16.49</td>
<td>$6.61</td>
<td>$15.69</td>
<td>$11.23</td>
<td>$8.51</td>
<td>$9.36</td>
<td>100</td>
</tr>
<tr>
<td>1923</td>
<td>31.21</td>
<td>15.88</td>
<td>31.35</td>
<td>22.01</td>
<td>15.89</td>
<td>13.09</td>
<td>130.21</td>
</tr>
<tr>
<td>May</td>
<td>31.16</td>
<td>16.06</td>
<td>31.34</td>
<td>22.39</td>
<td>15.92</td>
<td>13.34</td>
<td>130.21</td>
</tr>
<tr>
<td>June</td>
<td>31.18</td>
<td>16.07</td>
<td>30.78</td>
<td>22.45</td>
<td>15.91</td>
<td>13.19</td>
<td>129.58</td>
</tr>
<tr>
<td>July</td>
<td>31.17</td>
<td>16.07</td>
<td>30.78</td>
<td>22.45</td>
<td>15.91</td>
<td>13.19</td>
<td>129.58</td>
</tr>
<tr>
<td>August</td>
<td>30.99</td>
<td>16.06</td>
<td>30.57</td>
<td>22.23</td>
<td>15.11</td>
<td>13.07</td>
<td>120.03</td>
</tr>
<tr>
<td>September</td>
<td>31.23</td>
<td>16.06</td>
<td>31.24</td>
<td>23.06</td>
<td>14.91</td>
<td>13.06</td>
<td>120.03</td>
</tr>
<tr>
<td>October</td>
<td>30.99</td>
<td>16.06</td>
<td>28.28</td>
<td>23.08</td>
<td>14.82</td>
<td>13.38</td>
<td>126.61</td>
</tr>
<tr>
<td>November</td>
<td>30.72</td>
<td>15.87</td>
<td>27.37</td>
<td>22.94</td>
<td>14.61</td>
<td>13.31</td>
<td>124.53</td>
</tr>
<tr>
<td>December</td>
<td>30.80</td>
<td>16.02</td>
<td>27.62</td>
<td>22.74</td>
<td>14.51</td>
<td>13.31</td>
<td>124.53</td>
</tr>
<tr>
<td>January</td>
<td>30.62</td>
<td>15.55</td>
<td>26.53</td>
<td>23.21</td>
<td>14.32</td>
<td>13.25</td>
<td>121.58</td>
</tr>
<tr>
<td>February</td>
<td>30.57</td>
<td>15.46</td>
<td>26.53</td>
<td>23.22</td>
<td>14.40</td>
<td>13.59</td>
<td>123.77</td>
</tr>
<tr>
<td>March</td>
<td>30.55</td>
<td>15.51</td>
<td>26.36</td>
<td>23.36</td>
<td>14.18</td>
<td>13.69</td>
<td>123.65</td>
</tr>
<tr>
<td>April</td>
<td>30.42</td>
<td>15.53</td>
<td>26.39</td>
<td>23.36</td>
<td>14.18</td>
<td>13.69</td>
<td>123.65</td>
</tr>
<tr>
<td>May</td>
<td>30.24</td>
<td>15.41</td>
<td>26.12</td>
<td>23.12</td>
<td>13.11</td>
<td>13.70</td>
<td>121.70</td>
</tr>
</tbody>
</table>

Comparative Prices for Plumbing Fixtures in 1913 and 1924
The Building Situation

The records for September, which completes the first nine months of activity in 1924, indicate that this year has already passed the four billion dollar mark and that the total value of construction for the year will be over five billion dollars, as forecast in the January, 1924 issue of THE ARCHITECTURAL FORUM. Figures of the F. W. Dodge Corporation, which cover a large proportion of the country, show a total value of contracts awarded since January 1 of $3,365,077,700, an increase of nearly 12 per cent over the figures for the corresponding nine months of 1923. The total of contracts let in September is 19 per cent higher than in the previous September. In examining the line "Money Value of New Construction," in the chart below, it will be seen that the decrease in totals of contracts in June, July, August and September was not as great in 1924 as in 1923, and it is expected that October and November will show higher totals than the previous months.

There has been a slight, steady decrease in the cost of building materials and in the cost of building, as indicated in the building cost line in this chart. It is anticipated that there will be a heavy volume of winter construction, which will help stabilize demand and relieve the pressure when the active spring season begins to develop its usual heavy volume. The subject of winter building is now being studied more carefully than ever before.

The prospects for new building are good, the total value of construction for which plans were filed in September being nearly $40,000,000 higher than in September, 1923. Architects are beginning to feel effects of an active revival of business in their offices, and each month is now showing an interesting quota of delayed projects being brought out for active consideration. It is to be noted that the general character of new buildings for which plans are being filed is better than for some time, and that much of the highly speculative residential construction is being replaced by better types of investment building. The outstanding construction activity is to be found in the Middle Atlantic States, where building is much more active than in other sections, but general reports promise increased activity soon in the West and on the Pacific Coast.

These various important factors of change in the building situation are recorded in the chart given here: (1) Building Costs. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) Commodity Index. Index figure determined by the United States Department of Labor. (3) Money Value of Contemplated Construction. Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and Engineering News-Record. (4) Money Value of New Construction. Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) Square Foot Area of New Construction. The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.
Winter knows no ills or chills where The Johnson Pneumatic System of Temperature Regulation governs the temperature in the home. Each room is maintained at the correct and even degree, as required by the room’s purpose and occupancy. The Johnson Thermostat turns on and off each radiator independently of the others in the house and does so reliably, as the mercury in the wall thermometer goes beyond or below the point stipulated. The health of the household is guarded. The white joys of Winter ne’er turn to black sorrow.

The foregoing applies with equal emphasis to the office building or business block about to be erected, in course of construction or already built.

JOHNSON SERVICE COMPANY, MILWAUKEE

AUTOMATIC TEMPERATURE REGULATION FOR 38 YEARS TWENTY-EIGHT BRANCHES UNITED STATES AND CANADA
The Building Situation

As indicated in the chart below, the expected increase in October building activity has been shown by a total value of new building contracts during the month amounting to $410,090,800. This is the F. W. Dodge Corporation's figure for territory representing practically seven-eighths of the country and records an increase of 14 per cent over October of last year and 19 per cent over the preceding month, September, 1924.

This increase occurred principally in New York and New Jersey, where there was an increase of 31 per cent over September and 1 per cent over October of last year. In New England new building was 3 per cent higher than September and equal to October, 1923. In the Middle Atlantic States, October showed a 22 per cent increase over September and a 77 per cent increase over October, 1923. Other increases included the Southeastern States, 41 per cent over September and 60 per cent over October, 1923; the Central West, 16 per cent over September and 12 per cent over the previous October, and the Northwest, 33 per cent over September, but 11 per cent under October, 1923. The Pittsburgh district showed a slowing down of activity, being 12 per cent less than September and 18 per cent less than the previous October. It is quite evident by the nature of contracts let and plans filed that an unusual amount of winter construction is being undertaken. This trend toward the reduction of seasonal peaks is gratifying and will contribute strongly to the economic welfare of the country and of the building construction industry.

The charts on the next page show that residential building still contributes heavily to the grand total of building activity. This field includes not only dwellings but apartment buildings and hotels. Each month of this year has shown the highest total ever known for the same month in any recorded year, and yet rentals hold their high levels and the vast volume of new housing is quietly and quickly absorbed by the public. Commercial and industrial buildings are also again contributing an increased quota of new construction, while club and recreational building is unusually active.

Building costs are stabilizing in a manner which is encouraging many new projects into early stages of construction, and mortgage money remains plentiful with fairly liberal terms and appraisals usual.
Monthly Analysis of the Trend of Building Activity.

A study of the value of contracts let each month in seven important types of buildings—with graphic comparisons for the three preceding years.

In order that a comparison of monthly activity may be made at a glance, the value of contracts let is presented in the above graphic charts. This information is based on data obtained through the United States Chamber of Commerce and the F.W. Dodge Corporation. The activity of each year is shown by a special line according to the key indicated at the top of the page. Thus, on each chart the activity in the form of Money Value of Contracts Let may be followed through from January, 1921, to the most recent month for which figures were available when this page was printed. Not only is a rapid comparison provided of the total activity each year, but the relative activity for each month can be estimated by referring to the index figures representing millions of dollars as shown at the left of each chart. Reports cover about three-quarters of the total building in the United States.
## BUILDING MATERIAL PRICES

Table Showing Average Prices Paid by Contractors for Building Materials at Various Distribution Points as of October 1, 1924. Prepared by Division of Building and Housing of the Bureau of Standards from Figures Secured through the Bureau of Census.

### Commodity: Common Brick
- **Size or Condition:** 1000
- **Unit:** Each
- **Price:** 22.50

### Commodity: Yellow Pine No. 1
- **Dimensions:** 2x4-16', S.I.S. M.
- **Unit:** Each
- **Price:** 45.00

### Commodity: Cypress Shingles
- **Size or Condition:** Extra clear 16" to 20" sq.
- **Unit:** Each
- **Price:** 6.00

### Commodity: Red Cedar Shingles
- **Size or Condition:** Extra clear 16" to 20" sq.
- **Unit:** Each
- **Price:** 6.00

### Commodity: Cypress Shingles
- **Size or Condition:** Extra clear 16" to 20" sq.
- **Unit:** Each
- **Price:** 6.00

### Commodity: Window Glass
- **Size or Condition:** Single A 10"x12"
- **Unit:** Each
- **Price:** 4.00

### Commodity: Cast Iron Soil Pipe
- **Size or Condition:** 10" E.H. 13 lbs. per ft.
- **Unit:** Each
- **Price:** 6.00

### Commodity: Roofing Slate
- **Size or Condition:** No. 1 ribbon
- **Unit:** Each
- **Price:** 0.25

### Commodity: Tar Paper, Roofing
- **Size or Condition:** 50 lbs. per roll
- **Unit:** Each
- **Price:** 0.25

### Commodity: Rosin Shingled Sheathing
- **Size or Condition:** 50 lbs. per roll
- **Unit:** Each
- **Price:** 0.25

### Schenectady: Rochester-Akron
- **Price:** 22.50

### Clever-Tooled-Larson-Water Rockford-Ore.
- **Price:** 22.50

### Jackson-Madi-Arizona
- **Price:** 22.50

### Portland-Spokane-Denver
- **Price:** 22.50

### Kansas City
- **Price:** 22.50

### San Francisco
- **Price:** 22.50

### The Architectural Forum Service Section

---

Note: The table above shows the average prices paid by contractors for various building materials at different distribution points as of October 1, 1924. The prices are listed by commodity and include details such as size, condition, unit of measurement, and price. The table compares prices across different cities, with specific examples from Schenectady, Rochester-Akron, Clever-Tooled-Larson-Water Rockford-Ore., Jackson-Madi-Arizona, Portland-Spokane-Denver, and Kansas City.
THE FORUM CONSULTATION COMMITTEE

A group of nationally known experts on various technical subjects allied to building, providing a direct service to architects

THE editors of THE ARCHITECTURAL FORUM have been fortunate in obtaining the coöperation of the following recognized experts who constitute THE FORUM Consultation Committee. This Committee provides a service of the greatest value to subscribers in addition to the usual editorial service, and architects who seek information on specific questions in these various fields are invited to present inquiries regarding any of these subjects.

The basis on which this Committee has been organized is:
(a) That each committee member shall be a representative leader in his line;
(b) That no committee member has affiliations with any manufacturer;
(c) That no committee member will be called upon for detailed service excepting by special arrangement;
(d) That a special editorial article on a subject represented under each of the headings below shall be prepared during the year by the committee member.

SUBJECTS AND COMMITTEE PERSONNEL

HOTEL DESIGN AND EQUIPMENT

DANIEL P. RITCHIE
Known in the hotel field as the "hotel doctor," Mr. Ritchie, who is an engineer as well as an experienced hotel owner and manager, is qualified to answer any questions which may arise in this connection.

HEATING AND VENTILATING

CHARLES A. FULLER
Consulting, Heating and Ventilating Engineer
Member of firm of Griggs & Myers, New York. Widely experienced in the field of heating and ventilating design for office, institutional and industrial buildings; specialist on investigation and report work on mechanical equipment for new and old plants.

ELECTRICAL SCIENCE

WILLIAM L. GOODWIN
Vice-president of the Society for Electrical Development
This Society is organized to promote accurate knowledge of the practical application of electricity. Its activities extend from the simple problems of household equipment to highly developed electrical plants. Particular attention is given the development of provision for electrical service in buildings.

SAFETY ENGINEERING

S. J. WILLIAMS
Secretary and Chief Engineer, National Safety Council, Chicago
Safety engineering is an important factor in the design of buildings where large groups of people congregate. The National Safety Council has investigated construction and devices with the greatest minuteness.

FINANCE

WALTER STABLER
Comptroller, Metropolitan Life Insurance Co.
The largest institution in the United States making loans for building construction. Mr. Stabler's knowledge of building investments covers the country and is widely recognized.

REAL ESTATE

C. STANLEY TAYLOR
Widely experienced in real estate development and financing, real property law, architecture, engineering and building construction. Financial and Business Editor of THE ARCHITECTURAL FORUM.

FIRE PROTECTION ENGINEERING

J. D. HUNTER
Chief Engineer, Marsh & McLennan, Insurance Brokers, New York
Specialist in insurance engineering as applied to building design, construction and equipment.

BUILDING MANAGEMENT

J. CLYVESDALE CUSHMAN
President, Cushman & Wakefield, Inc., Real Estate, New York
Mr. Cushman's firm has participated largely in the promotion and operation of many large New York buildings. His own specialty is the management of office buildings.

GAS SERVICE AND UTILIZATION

NILS T. SELLMAN
Service Engineer, American Gas Association
A specialist in problems pertaining to gas service and its use in all classes of buildings and industries.

Address inquiries to committee members, care THE ARCHITECTURAL FORUM, 383 Madison Avenue, New York
HOTEL CALIFORNIAN, Fresno, Calif.: R. F. Felchlin Co., Fresno, Architects; Crane Co., San Francisco, Jobbers; Barrett-Hicks Co., Fresno, Plumbers

And the HOTEL CALIFORNIAN

It is no easy matter to keep pace with the swift development of California’s great San Joaquin Valley.

Among other things, it requires hotels and more hotels; so the city of Fresno has responded handsomely by building the Hotel Californian.

The character of this fine hotel is indicated by the fact that Kohler “Viceroy” built-in baths were selected to equip its 160 bathrooms.

Kohler Ware’s national reputation for more than ordinary quality seldom fails to receive careful consideration wherever the needs of a discriminating public must be served.

KOHLER OF KOHLER

Kohler Co., Founded 1873, Kohler, Wisconsin
Shipping Point, Sheboygan, Wisconsin

BRANCHES IN PRINCIPAL CITIES

MANUFACTURERS OF ENAMELED PLUMBING WARE AND KOHLER AUTOMATIC POWER AND LIGHT 110 VOLT D.C.
In this booklet there are presented a number of designs for houses of different architectural types which are successfully developed in stone, together with their floor plans and suggestions for placing such houses in different ways upon building plots of sizes likely to be available for building.

Stone is often thought to be something of a luxury and its use appropriate only for structures which are large and costly, but architects are now giving more attention than ever before to the use of stone in smaller, moderate-cost houses, and many interesting examples of the use of stone for such houses now exist. It is true, of course, that the initial cost of stone is greater than that of certain other building materials, but it might be remembered that upon the credit side of the account there are to be entered large items for the lack of upkeep cost, greater resistance to fire, etc., which will before long more than offset the greater expenditure at the beginning.

Publication of this volume, which contains designs for houses of distinctly moderate costs and sizes, marks a step forward in meeting the requirements of builders of smaller houses. The booklet will be sent gratis to any architect who requests it.


During the past few years a great change has come to the treatment which is given the floors in offices, shops of certain kinds, restaurants, vestibules and other more or less public places. It is now realized that floors of wood are not always desirable and that floors of concrete or cement are often responsible for the fatigue which so frequently interferes with the work of those employed in such areas. Thus there have come into use flooring materials of different kinds which in addition to possessing desirable strictly utilitarian qualities are so beautiful that they would often be likely to win acceptance on the score of appearance alone.

“Hospital Floors” describes and illustrates floors in quite a number of hospitals, certain floors, particularly in large wards, being covered with Battleship Linoleum, while in other rooms such material is used in combination with borders of the same material in striking color combinations. Also for hospital use are suggested the Gold Seal Treadlite Tile which possess colorful beauty, are noise-deadening, and which wear indefinitely without requiring refinishing or repairs.

“Distinctive Floors” and “Gold Seal Treadlite Floors” deal with flooring for banks, restaurants, certain rooms of hotels, and elsewhere where a certain excellence of appearance is quite as necessary as good wearing qualities. The number of effective color combinations which the material affords is astonishing, and without being an imitation of marble it affords many of the qualities which render marble desirable, along with the softness to the feet which is the chief underlying valuable quality of many of these materials.

The company offers to the public the services of its designing department, and it is obvious that into work of this character the matter of design enters largely. The matter of color and the securing of rich and appropriate color combinations are in many an instance quite as important as selecting an effective design for the units of the different colors.


Fully warranted by its importance is the attention which careful architects and builders are giving to the choice of piping. Under any circumstances the subject would deserve consideration, but the growth of the practice of concealing pipes of all kinds within walls and floors, and the consequent impossibility of reaching the pipes without extensive tearing away of walls and ripping up of floors render it absolutely imperative that the matter be given attention at the proper time—when the structure is being planned by the architect.

All forms of metallic piping are subject to corrosion which will eventually cause failure. There are countless instances where the piping of a building has worn out long before the structure itself shows even the smallest tendency to decay, and with the absolute certainty of eventual failure of piping it is merely the part of wisdom to prolong its life as long as possible. Webster’s Dictionary says that corrosion is “Action or effect of corroding, or of corrosive agents; the process of corrosive change. The word is now generally used of a gradual wearing away by a chemical process, as in the rusting of iron; but it formerly included erosion, which is a mechanical process. It is sometimes applied to chemical alteration not necessarily accompanied by loss of form or compactness, as in the change of lead into white lead.” The process of corrosion may be hastened or retarded by the presence or absence in water of certain ingredients which affect the surfaces of metal piping, and with water used for so many purposes it has been found that (1) pipes of wrought iron or steel are best for heating systems, (2) cast iron for soil pipes, vents and underground service, and (3) brass for salt water piping, for hot water supply piping, and for cold water supply piping, at least where the lines are concealed.

While this well written and valuable brochure is devoted primarily to the brass piping made by this well known firm, it covers quite thoroughly the other forms of piping which good practice recommends for certain specific purposes. The manufacture of brass piping is described, all necessary data as to weights and sizes are given, and considerable information is included as to installations of various types in which it has been used during many years.
THE Clow marble mill is one of the oldest departments of the Clow business. In architectural beauty as well as skillful workmanship Clow marble work is unsurpassed.

This work includes not only fine ornamental work such as tables, benches, etc., but wainscotings, partitions, and stalls, and showers, hydrotherapeutic suites, and other lavatory equipment.

Clow standards of quality and years of experience insure a character of marble work in keeping with the finest buildings.

JAMES B. CLOW & SONS

General Offices
534-546 S. FRANKLIN ST., CHICAGO
Sales offices in principal cities

CLOW
Manufacturers' Catalogs

WARREN WEBSTER & COMPANY, Camden, N. J.
"Webster from the Air." Views of various large cities.

Architects, engineers and builders have little need of information regarding the excellence of the heating apparatus made by this well established firm, for their product speaks for itself and is in use everywhere, from one end of the country to the other. None the less, probably to provide in easily accessible form data regarding the most recent developments of each one of its specialties, the company has issued this booklet or brochure giving details regarding "some of the elements that assure the success of 30,000 Webster installations," details such as the Webster Modulation Valve, the Webster Sylphon Trap, and the Webster Sylphon Attachments, with illustrations which show the methods by which these accessories are used in a heating plant.

Wholly apart from its value as giving this information in helpful form is the character of the brochure itself. The wide use of the equipment made by Warren Webster & Company, used in every city in the country, probably suggested the photographing from the air of the 24 leading cities in the United States, and the booklet gives aerial views of cities from Boston to Seattle and from Minneapolis to New Orleans which are interesting indeed. They prove, for one thing, that all American cities are now practically alike and have lost—or are rapidly losing—any distinctive architectural character which was originally possessed. This brochure is one of the most interesting details of advertising matter we have ever seen.


The growth of the practice of having many of the service departments of modern buildings of different kinds in basements necessitates having some method of close connection between the level of the basement and that of the street or the sidewalk. This is required not only for the proper receiving of deliveries of many kinds, which must be taken into the basement, but also for raising to the street level the quantities of ashes and garbage which often accumulate in even a single day in a large structure.

For these and various other uses the hoists made by Gillis & Geoghegan are well and widely known, and this new booklet fully describes the electric and hand power models which the firm supplies. The principle by which these hoists are operated is so simple that they are not likely to get out of order or to require repairs. In addition to dealing with the hoists themselves, the booklet describes and illustrates the door opening and closing devices which go with the hoists, and various other details.
Unless you have watched a modern home in process of building, you may have only a vague notion of the various pipe lines, valves and connections which are buried behind the walls and beneath the floors. Yet the health and happy comfort of your household depend as much on the smooth working of these hidden necessities as on the convenience and fine proportions of the Crane fixtures whose beauty adds to the charm of your home.

It is the business of Crane service to supply this need for complete sanitary and heating systems as dependable and enduring as they are inviting in form. Branches and offices in 145 cities make it easy to choose plumbing materials satisfying both your taste and your building budget.
Manufacturers’ Catalogs and Business Announcements

O’BRIEN VARNISH COMPANY, South Bend, Indiana.
“Architectural Specifications for Varnishes, Enamels, Wall Finishes and Stains.”
Manufacturers of various materials which enter into buildings have found by experience that to insure satisfactory use of their materials it is wise to supply to purchasers specifications or directions for the use of the materials so carefully prepared that they are “fool proof.” In this brochure the O’Brien Varnish Company gives directions for using its various products. The directions or specifications, each of which is printed on a page to itself, describes what should be the condition of the surface to be treated before the painters begin their work; then the preparatory coat or coats are specified, and directions for the following coats and finishing coats are given.

Particularly helpful are the specifications covering the finishing of interior woodwork by the processes in which fillers, stains and varnishes are used.

ANNOUNCEMENTS

John Russell Pope on April 15 opened new offices at 542 Fifth Avenue, New York.

Bagg & Newkirk, Architects, are now occupying offices at 255 Genesee Street, Utica, N. Y.

F. P. Platt & Bro. announce their removal to new offices at 221 West 57th Street, New York.

Leonard Anthony Gliatto announces the removal of his offices to 343 South Dearborn Street, Chicago.

Gibbs & Waltz announce their removal from the Ithaca Trust Co. Building to the Ithaca Savings Bank Building, Ithaca, N. Y.

William Quincy Bendus announces the removal of his office to the McCormick Building, 332 South Michigan Boulevard, Chicago.

Marks & Kann announce their removal from 28 Jackson Building to 703 Home Trust Building, Pittsburgh.

Pond & Pond, Architects, are occupying new offices in the Tower Building, 6 North Michigan Avenue, Chicago.

The office of Chatten & Hammond was established on April 1 in the Burnham Building, 160 North La Salle Street, Chicago.

Childs & Smith, Architects, have established new offices in the Central Life Building, 720 North Michigan Avenue, Chicago.

W. H. Spaulding, Architect, announces the removal of his offices from 375 Fulton Street to 163-18 Jamaica Avenue, Jamaica, N. Y.

H. M. Haven & A. T. Hopkins, Inc., Engineers and Architects, announce their removal from 40 Court Street to 11 Beacon Street, Boston.

A. F. Gilbert announces his removal to 358 Fifth Avenue, New York.

B. Albert Conn announces the establishment of his offices at 20 West Jackson Boulevard, Chicago. Catalogs and bulletins of manufacturers are desired.

Lundblad & Lundblad, Architects and Engineers, announce their removal to 912 Donovan Building, Detroit. Catalogs of manufacturers are requested.

Annette Hoyt Flanders, Helen Swift Jones, Associate, announces the opening of offices for the practice of landscape architecture at 8 West 51st Street, New York.

Walther Erickson, Architect, announces the opening of his office at 344 East 149th Street, New York. He would appreciate receiving manufacturers’ samples and catalogs.

John Sloan announces that T. Markoe Robertson has been admitted to partnership under the firm name of Sloan & Robertson, with offices at 1 Pershing Square, New York.

M. Moriyama, Architect, member of the Institution of Japanese Architects, announces the establishment of his offices at No. 17, 3 chome Ginza, Kyobashiku, Tokio, Japan. Manufacturers’ catalogs and samples are desired.

George & Zimmerman, Architects and Engineers, successors to George & MacLucas, are occupying new offices in the Meyer-Kiser Bank Building, Indianapolis. The members of the firm are Lawrence W. George and D. J. Zimmerman.

Announcement is made of the organization of the firm of Andrews, Jones, Biscoe & Whitmore, 50 Congress Street, Boston, for the practice of architecture. The members of the firm are Robert D. Andrews, I. Howland Jones, Maurice B. Biscoe, and John T. Whitmore. With the completion of work now in hand, the firm of Andrews, Rantoul & Jones will cease to exist.

The interest of J. Martin Brown in the firm of Brown & Derrick, Inc., has been acquired by Robert O. Derrick, and he will continue practice under the name of Robert O. Derrick, Inc., at 20 Madison Avenue, Detroit. Branson V. Gamber, George S. Fleming and John T. Briskey are associate members.

VAN RENSSELAER P. SAXE, C.E.
Consulting Engineer

STRUCTURAL STEEL
CONCRETE CONSTRUCTION

Knickerbocker Building Baltimore
Why the finer new buildings use Whale-Bone-Ite Toilet Seats

Their long life makes them an economical investment: most sanitary and easily kept clean.

Whale-Bone-Ite toilet seats pay for themselves out of the repairs they never have. Fewer seats need replacement, revarnishing and finishing. They never warp or have broken hinges. Lifetime use cannot mar the perfect finish of Whale-Bone-Ite. The true economy of these seats is proved only after years of satisfaction, with no repairs, no worry or expense.

For an installation of permanent satisfaction, architects, building managers, expert plumbers, today recommend Whale-Bone-Ite toilet seats.

Years have proved their superiority in 10 important ways. Each exclusive feature is guaranteed. Insist on Whale-Bone-Ite seats for these 10 reasons:

- Permanent Durability
- Acid-Proof
- One-Piece Construction
- Non-Inflammable
- Non-Warping
- Permanent Finish
- Sanitary
- No Exposed Metal
- Easiest Cleaned
- Comfortable

Whale-Bone-Ite comes in two finishes to match the toilet room fixtures: ebony or mahogany. Leading plumbers and jobbers supply Whale-Bone-Ite. Refuse imitations.

If your jobber or plumber can't supply you, write direct to Whale-Bone-Ite Division.

THE BRUNSWICK-BALKE-COLLENDER CO., 623 South Wabash Avenue - CHICAGO
Manufacturers’ Catalogs

THE MAHOGANY ASSOCIATION, INC., New York.
“Historic Mahogany.”

Students of furniture find the subject divided broadly into three sections: the age of oak, the age of walnut, and that of mahogany, each being the time during which the wood concerned was being chiefly used or was particularly favored by the world of fashion. The age of mahogany, in which we may be said to be still living today, began toward the close of the sixteenth century when Sir Walter Raleigh introduced the wood into England, and with mahogany are identified all the great furniture makers whose names have survived—men such as Chippen-dale, Hepplewhite and Sheraton in England, and that most eminent of American furniture makers, Duncan Phyfe of New York.

This little brochure has been published probably to keep before the eyes of architects and decorators the merits and possibilities of mahogany,—if indeed it be necessary to advertise the possibilities and merits of a wood universally popular, the very name of which suggests luxury and beauty. In its pages are contained many facts of interest to the student, and the pages are enlivened by a number of spirited little drawings of details of furniture, such as the pediments frequently used upon large pieces of wall furniture, and the legs and feet of tables and chairs. The booklet should certainly find a place in the library of any architect or student of furniture designing or interior decorating by reason of its valuable data.


The strength of even most metals and other substances which are supposedly imperishable is not always proof against the insidious attacks of acids and fumes which are derived from various chemicals. Thus experience has proved that cast iron is attacked and eventually destroyed by many acids which are in common use, while steel and wrought iron are generally even less resistant to acid attack than cast iron; brass will not withstand the attacks of such widely used corrosives as nitric, strong sulphuric and muriatic acids and iron chloride, and copper is affected similarly to brass. Substances of other kinds are likewise affected disastrously by acids and fumes. Tile is rapidly disintegrated as soon as its glaze has been eaten away; glass is so easily chipped or cracked that its value is not likely to be great, while other substances, such as fiber, warp from temperature variations, become softened by liquids and sag and leak. And yet buildings of countless sorts, such as chemical plants and laboratories and factories where acids of different kinds are much used, are dependent upon these materials for their drain pipes as well as for the fans, hoods and linings of ducts which are used in ventilating apparatus.

Difficulty of securing a material suitable for uses such as have been described was the cause of the perfecting and introduction of “Duriron,” a metal which will withstand these conditions. Research scientists carefully analyzed and studied the requirements and succeeded in producing an alloy of iron which is entirely resistant to the action of commercial corrosives. Being a homogeneous metal it requires no protective coating and it is equally immune from attack inside, outside and all through its structure. The manufacturers’ statement gives its constituents as silicon, carbon, manganese, sulphur and phosphorus.

This brochure or booklet, in addition to giving all possible data regarding “Duriron,” catalogs the sizes of pipes, the different pieces used with piping such as hubs, bells and flanges, spigots, reducers, increasers and other details, together with the fans, impellers and other parts which have to do with ventilation. The brochure lists the names of a large number of architects who have specified “Duriron,” and gives another list of important structures in different parts of the country in which it is used.


Probably the necessity of instructing properly the large number of young architects and specification writers which each year finds at work is one reason for the publication of this brochure which should be on file in the office of every architect, builder or contractor. The use of electricity for lighting is of course now universal, and with its widespread use there comes the necessity of being fully informed regarding the wiring systems by means of which the electrical current is transmitted from its source to the lighting fixtures and regarding the lighting fixtures themselves by which the light is distributed. One of these subjects of course has to do with the best and most economical method of bringing current into a building, while the other covers its most economical consumption, and both are important, since it would be easy to fall into error by making a wiring system too small or too large for the work it must do, the result being insufficient lighting or waste of materials, or by using fixtures too large, so that they consume an unnecessary amount of current.

In this valuable brochure, therefore, the entire subject is covered fully and yet within brief compass. Explanations are given of various kinds of lighting systems, such as direct lighting, semi-indirect or totally indirect, and reasons are given for one type’s being best adapted for use in a certain place. Directions are given for the correct installation of each type and regarding the kind of lighting fixtures which belong to each. The brochure also gives an endless quantity of valuable data regarding lamps, reflectors, diffusers and other details of equipment.
A "TARNIA" BATH FOR THE AVERAGE POCKETBOOK

The average man covets the beauty and convenience of the Tarnia bath that is finding such enthusiastic acceptance in so many homes.

There is room in the estimates of even modest homes or apartments which you may be designing, for the Tarnia bath shown above. Sanitary and economical Vitrolite and similar materials will replace expensive tiling on its sides. It may be set in any position. In a right or left corner or an alcove, it requires no more space than an ordinary tub.

Home builders will welcome your suggesting it. Apartment or hotel owners will foresee increased revenue. And Crane in specification signifies dependable quality to all.
Manufacturers' Catalogs

PRATT & LAMBERT, INC., New York; Buffalo; Chicago; Bridgeburg, Ont. "The Specification Manual."

Manufacturers of many kinds of material which enter into building discovered long ago that their efforts in supplying excellent materials often failed to give satisfaction to the owners of the buildings owing to their being improperly used. In the use of certain materials there is a great difference in various parts of the country and with different classes of workmen, and in few departments of building are there wider differences in matters of practice than in the use of paints, enamels, varnishes and the other varieties of what are broadly known as "painting materials."

To acquaint architects with the proper methods of using the many materials which the firm produces, Pratt & Lambert, Inc., are issuing a Specification Manual which describes the proper use of each. The 40-page book represents careful preparation, involving research and practical finishing experience gained in the manufacture and use of varnishes, enamels and kindred products covering a period of more than 75 years. It supplants all previous Pratt & Lambert specification books and contains, in addition to detailed specifications, some timely and readily available information on finishing interior and exterior surfaces. The facts in the manual, their presentation and arrangement, are the result of considerable thought, bearing uppermost in mind the convenience and preference of the specification writer and the architect. Several pages of the brochure are devoted to listing the many Pratt & Lambert products, giving a description of each.

INTERNATIONAL CASEMENT CO., Jamestown, N. Y. "International Casements." Arguments for Wider Use.

Has the demand for casement windows brought about their present development, or has the high standard of excellence which they have reached been the cause of their being more widely used? This type of window belongs to architecture of almost every form used upon the Continent and was employed universally in England until the time during the seventeenth century when the importation of new fashions from Holland brought the "double-hung" or guillotine window. The use of casements in America has of course been furthered by the improvements which have been made to them. The modern casement is of steel and of scientific strength and accuracy, possessing members which considerably strengthen the sash frame and act as a baffle against the wind and rain in the most exposed positions. It is accurately fitted, secure and weather-proof, and the casement form of window offers several advantages which are so well known by architects that they need not be enumerated here.

This publication might be described as a complete catalog to the use of "International Casements" and also an illustrated argument for their more extended use. There is given every possible detail of data which architect or builder could desire concerning material, construction, glazing and hardware, together with drawings of casements and their various parts, and drawn details as well of sills, jambs, mullions, and the other parts of a building with which casements come into contact. But what will particularly interest a designer is a collection of illustrations from photographs of exterior and interior views of windows of countless old English houses together with detailed drawings of their casement windows. Among the illustrations are many from such well known houses as Owlpenn Manor, Upper Swell Manor, Westwood, Penshurst Place, West Burton Manor, Compton Wynates, Great Dixter and many more old places of different English periods. The volume also includes illustrations and details of many examples of modern American work by well known architects.


There may be a large difference between the cost of a heating system properly installed and economically operated and the same system carelessly equipped and managed, even though there is no difference in the amount of comfort which the system affords to occupants of the house. When the cost of heating a building is excessive, the trouble may be due to some small defect in the installation or to some error in the grading of some parts of the piping system. There are instances where some few radiators upon a system remain cold until they are heated by forcing the system to a high temperature when the difficulty could be quickly remedied at small expense by making slight changes in the pipes which serve these radiators. In other instances excessive cost of operating a heating system is due to not-keeping the boiler and piping system clean, oil and dirt being brought into the boiler with the return water.

This "folder" or "leaflet," issued by a concern which has made a particular and successful study of heating in its different aspects, is so filled with useful information that it should be had not only by architects, engineers and builders but by everyone who is in any way interested in heating plants.

VAN RENSSELAER P. SAXE, C.E.
Consulting Engineer

STRUCTURAL STEEL CONCRETE CONSTRUCTION

Knickerbocker Building Baltimore
SEVEN thousand modern school buildings have installed "Clow throughout." This testimony is valuable because

1. The school buildings of this country are among its finest examples of architectural taste. Quality of design and workmanship is insisted upon.

2. School use is hard use. Plumbing and plumbing accessories must give continuous good performance with the minimum of repairs and upkeep.

These seven thousand school buildings are seven thousand reasons why every school should have "Clow throughout."

JAMES B. CLOW & SONS
General Offices
534-546 S. FRANKLIN STREET, CHICAGO
Sales offices in principal cities
These weights, since they must be concealed, are necessarily arranged with "double-hung" or "guillotine" sash, so made that they may be raised, lowered, or held open at any desired point by means of the weights by which they are counter-balanced. Since they can be reached only by removing this woodwork, at considerable inconvenience and cost, it is most desirable that the installation be carefully made in the first place, that the weights be neither too heavy nor too light to serve their purpose, that the pulleys and other mechanism be simple and therefore not likely to get out of order, and that the cords or chains be durable.

Owing to the wide use which architects and builders are making of the sash chains manufactured by the American Chain Co., Inc., it is hardly necessary to enter here upon a description of their advantages, but the purpose of this booklet is probably to keep before those interested particulars regarding the different weights and sizes of these chains and similar details concerning the fittings which go with them. The links of the American Sash Chain are flat which gives the chain a strap-like action as it runs smoothly and freely over a pulley which has the regular sash chain action. There is no possibility of there being a "kink" in the chain which might make it impossible to raise or lower the sash.

The company also manufactures a Round Cord-Pulley Chain, designed as the name implies to be operated over the usual round faced pulley, but since it is a chain it cannot stretch, unravel, or rot, nor can it be cut by sharp edges.

Besides listing sizes, thicknesses, finishes and weights of these different kinds of sash chains and the fixtures which are used with them the booklet gives and illustrates an impressive list of well known buildings of every kind in all parts of the country in which the chains supplied by the American Chain Co., Inc., are being successfully used.


The value of sheet roofing of any kind depends upon two things: (1) a pliant, durable, adhesive waterproofing bitumen, which shall be free from destructive chemical elements and entirely impervious to water; (2) a felt foundation which in spite of severe weathering will permanently hold this bitumen fast to the roof. It is much easier for the layman or even for many architects and builders to understand the importance and nature of the felt than the properties of the bitumen, the function of which is to saturate the felt. In the past hardly enough effort was made to develop this vitally important waterproofing agent, the bitumen, and the Richardson Research Laboratories worked and experimented for years in order to obtain a material which would be free from the defects which characterized the earlier materials used for this purpose, the result being "Viskalt," a blend of waterproofing bitumen said to be more efficient than anything which has ever been devised. This bitumen is used upon felt which possesses four different requirements, each dependent upon the other; they are (a) proper absorptive capacity; (b) tensile strength, (c) flexibility, and (d) uniformity, and proper weight and thickness are secondary to these principal requirements. All of these requirements are important.

Closely allied to efficient roofing are the subjects of Waterproofing, Dampproofing, and Insulating, and this valuable booklet deals with all these topics, giving directions or specifications for the use of Richardson materials which, if properly used, will secure the results desired. Just as the materials themselves are the outcome of years of experiment, the specifications are the result of thorough research work by the best chemists and roofing experts.

ANNOUNCEMENTS

The executive offices of the Illinois Society of Architects have been removed to 160 North La Salle Street, Chicago.

The new office of Harvey Dakin, Architect, is at 413 Thatcher Building, Pueblo, Col., and not Syracuse, N. Y., as was announced in a recent issue of THE FORUM.

Herman R. Kaplan has opened an office for the practice of architecture at 1628 Eolian Hall, New York. Manufacturers' catalogs and samples would be appreciated.

The firm of Bellows & Aldrich having been dissolved, Robert P. Bellows will continue the practice of architecture at 8 Beacon Street, Boston. George W. Gilmore will be associated with Mr. Bellows.

William T. Aldrich, formerly of the firm of Bellows & Aldrich, has opened offices at 30 Newbury Street, Boston. Associated with him are James A. Holt and Stanley B. Parker.

Nichols & Sheppard, Architects, have admitted to partnership George Y. Masson, and the firm will now be known as Nichols, Sheppard & Masson, with offices in the Dowler Building, Windsor, Ontario.

H. Wanetick, a civil engineer, formerly of Pittsburgh, is now in Palestine engaging in building construction and would be glad to receive the catalogs and samples of manufacturers. Mr. Wanetick is to be addressed care District Engineer, Jerusalem.
The equipment supplied by Clow includes: 114 M-3194 special design Closets; 15 M-3196 Closets; 24 M-4362 Lavatories; 14 M-4235 Lavatories; 2 M-4275 Lavatories; 20 batteries of Urinals (M-3418 and M-3414); 8 M-3656 Showers; 126 M-4020 Lavatories; 34 M-5140 Slop Sinks; 2 M-4536 Fountains; 2M-3590 Tubs; 1 M-3594 Tub.

Equipped with “Clow Throughout”

The American Furniture Mart, on the Lake Shore Drive, Chicago, contains over 1,500,000 square feet of floor space, the largest amount in the world under one roof. This building, as its name implies, is the national market-place for fine furniture, containing sales and exhibition rooms of manufacturers all over the country. Its appointments of every sort necessarily conform to the highest standards of home furnishing.
Although the use of certain chemicals in powder form is far more advantageous than their use in solution, it has long been necessary to use them in liquid form owing to the difficulty of securing proper distribution of the chemicals in the form of powders. Many chemicals, however, which are now used in solution can be applied as dry powder if appropriate control mechanism is made use of. Particularly is this true in water purifying plants where the difficulty of applying and controlling alum, soda ash, sulphate of iron and milk of lime solutions is avoided when it is possible to use these chemicals in the dry state. Dry feeding brings an end to difficulties from leaking tanks, corroded constant-level boxes, clogged-orifices, broken valves and the untidiness and disagreeable features which are common to solution feed systems. Dry feed application reduces labor, provides a ready and instant check on chemicals, and in operation effects a saving in materials.

This folder describes and illustrates the W. & T. Dry Feeder and lists a number of cities and towns in the water purification plants of which it is used. It also gives the names of a number of large manufacturers who are using the feeder in their plants. In operating this feeder the pulverized or granulated chemical is placed in the hopper. The chemical flows on to a revolving feed table through the feed spout, this table together with suitable agitator mechanism being belt-driven from an electric motor, water motor, or line shaft. A stationary scraper removes the chemical from the revolving feed table, diverting it to the receiving hopper from which it may be conducted by gravity feed to the point of application as a dry chemical. If desired the chemical may be mixed with water in the receiving hopper and the resultant solution fed through a water-operated ejector to the point of application. The rate of chemical feed is regulated by raising or lowering an adjustable collar between the feeding spout and the table. This collar operates on a calibrated rod. The capacity of the feeder may be changed by altering the speed of the table, this being accomplished by changing the size of the driving pulleys.

Chemicals vary greatly as to fineness, moisture content, etc., so that it is impracticable to empirically calibrate a dry feed apparatus at the factory. It is a simple matter, however, to calibrate the machine at the time of installation for the particular kind and grade of chemical which is being used.


Manufacturers of building materials of various kinds find that a certain method of attracting the attention of those interested in building is to issue publications containing illustrations of attractive and practical houses, together with plans of their interiors. This is, of course, the most logical way of gaining the favorable notice of those who, it is presumed, will eventually use the materials which the manufacturers produce and sell.

In this brochure there are given perspective views, drawings of elevations, and the floor plans of quite a number of small or medium sized houses which would be appropriate for almost any part of the country. Along with the illustrations and plans there are given what the publishers of the brochure evidently consider approximate building costs, though probably, in this day of constantly changing prices, these figures are intended only to serve as a basis upon which a prospective builder may make his calculations and consider the possibilities of making the venture of building.

INDIANA LIMESTONE QUARRYMEN'S ASSOCIATION, Bedford, Ind. "Distinctive Houses of Indiana Limestone."

While marble might be regarded by many as more luxurious, stone would unquestionably be considered by the greater part of the world as the most desirable of building materials. It has been used in every type of architecture which the world has ever seen, and it is the material in which the masterpieces of every style have been built. It is doubtful if architecture in America has been as successfully developed in any other material as in stone, and in this brochure there are illustrated many of the most notable of American residences of which the exteriors are entirely faced with stone or for which stone is largely used in the form of trimming; among these are the two Vanderbilt houses at Fifth Avenue and 53rd Street, other notable houses in the styles of the Italian, French or English Renaissance elsewhere in New York or in other cities, and country homes in different parts of the United States.

In this brochure, issued by the Indiana Limestone Quarrymen's Association, there are illustrated many of the most notable examples of the type of buildings under consideration. In The Architectural Forum for July, 1924, there was given a review of the "Portfolio of Designs for Moderate Cost Indiana Limestone Houses" which considered the value of the material for houses of average sizes and costs. The present work discusses limestone in its relation to structures of greater sizes and costs, and yet it is plain that the value of the material is the same whatever be the manner in which it is used.

Limestone is a fine, even textured oölite or non-crystalline stone of beautiful soft color values which vary in the different grades from a somewhat grayish buff on through silver grays to a medium-toned gray of a cast which is slightly bluish. The particular kind of limestone which is considered in this brochure forms the ledges in two of the counties of southern Indiana. The stone is not quarried by blasting, but is cut in huge blocks from the solid ledge by machinery. The material, which is not
From the Ground Up

MEDUSA Products will help make your work more effective, at every step in the planning and construction of office and industrial buildings. For example:

Foundation Walls and Floors. Concrete work can be kept permanently waterproof by using Medusa Waterproofed Gray Cement or by adding Medusa Waterproofing, Powder or Paste, to ordinary portland cement. Even where exposed to a direct and constant head of water, concrete so prepared will remain free from moisture inside.

See Specifications in "Sweet's"—Pages 102-103.

Mortar for setting Marble, Terra Cotta, Brick, Glazed Tile, Granite, Limestone, etc. Medusa Non-staining White Portland Cement, Waterproofed, offers these distinct advantages: It will not stain nor discolor, nor will it affect the materials with which it is used. It may be tinted to harmonize with any color scheme. It will not absorb water, even in driving rain. It will prevent efflorescence.

See Specifications in "Sweet's"—Pages 350-351

Stucco of Medusa Non-Staining White Portland Cement, Waterproofed. Lends a distinctive finish to public buildings of many types. Will not stain nor discolor, nor absorb water even in a driving storm. "Medusa" is the only waterproofed White Cement on the market.

See Specifications and Details in "Sweet's"—Pages 349-350-351.

Precast Building Trim. An admirable substitute for cut stone, when executed in Medusa Waterproofed White Cement.

Ornamental work, fountains, balustrades, etc., in almost infinite variety, can be produced by competent manufacturers of precast work, using Medusa Non-Staining White Portland Cement, Waterproofed.

Other important uses for Medusa Waterproofed White Cement—the only waterproofed white cement on the market—include:

- CONCRETE BLOCK FACING
- CEMENT BRICK
- CEMENT MANTELS
- FLOOR TILE
- LAMP STANDARDS
- RAILROAD WHISTLE POSTS
- SWIMMING POOLS
- SHOWER BATHS
- TRAFFIC MARKERS
- TERRAZZO TILE
- TABLE TOPS AND COUNTERS, ETC.

The Medusa Books will help you in preparing recommendations covering the use of Medusa Waterproofed White Cement on any given piece of work.

We will gladly send copies of the books on request.

THE SANDUSKY CEMENT CO., Dept. F, Cleveland
Manufacturers of Medusa Non-Staining White Cement (Plain and Waterproofed); Medusa Waterproofing (Powder and Paste); and Medusa Gray Cement (Plain and Waterproofed).

MEDUSA PRODUCTS
Will Help Make Your Work More Effective
very hard as it occurs in the ledge, is removed from the earth by what is known as the "channeling" process. Channel cuts are made in the solid ledge from 4 to 6 feet apart, and from 8 to 12 or even to 14 feet in depth. These cuts may be of any length from 20 to 100 feet or more, according to the length that it may be desired to quarry at a single operation. The entire production process, which includes finishing as well as the actual quarrying, is carried on by machinery and is more like modern manufacturing on a vast scale than ordinary stone quarrying.

The brochure gives to architects and builders all the data regarding colors, qualities, and sizes of sandstone which are necessary for its intelligent use; and the Association offers the help of its Service Department where problems of an unusual nature must be solved by builders or architects.


It has long been one of the anomalies of building that while the doors of bank vaults are often of great weight and thickness and of the most complicated mechanism imaginable, the walls, floors and ceilings of the same vaults are frequently of a thinness and of a general character which barely escapes being flimsy. It is easy, of course, to quote the lines about a chain's being only as strong as its weakest link and to paraphrase the words into something about a bank vault's being only as secure as the thinnest part of its walls, ceiling or floor. It is extremely doubtful if human ingenuity is equal to designing or constructing a vault which would be absolutely proof against attack over a considerable period. What might be termed the "time element" enters vitally into the calculations, and probably the utmost which could be hoped for would be to secure a vault so strong in its resistance to assault that it could not be entered in any period during which the vault would not be under observation. In any plan of security for bank vaults considerable dependence must necessarily be placed upon watchmen, patrol systems, and the devices by which alarms are sounded if a vault is tampered with, touched, or indeed even approached.

In planning the different buildings for the Federal Reserve Bank it was important that construction and equipment represent absolutely the final word in completeness, and with this in view some tests were conducted in 1920 at the Bureau of Standards in Washington on all types of vault reinforcement in common use at that time to determine their respective merits for use in the vaults of the various Federal Reserve Bank buildings; it was largely due to these tests that demonstration was made of the instability of the average bank vault. The tests for safety demonstrated the unreliability and untrustworthiness of many types of bank vaults and showed the superiority of vaults in which walls, floors and ceilings are constructed of concrete reinforced with steel in a way which renders them as nearly burglar-proof as they can be made, and vaults built upon the system used by the Rivet-Grip Steel Co. have been installed in a number of Federal Reserve Bank buildings, among them those in Cleveland, Pittsburgh, St. Louis, San Francisco, Little Rock, Louisville and Minneapolis.

It would hardly be possible in very limited space to adequately describe this system by which steel reinforcement is so used in the concrete that the entire mass acts as a monolith unit equally strong at all points. Economy is possible even in the securing of safety; for the Rivet-Grip frames or units are to be had in many shapes and forms suited for use in different positions, and since all the material is shop-fabricated and is sent to the site ready for installation, no filling or bending has to be done when installation is to be made, and ordinary building workmen can do the installing accurately and quickly. This material, being produced on a quantity basis in large, well equipped shops, can be marketed at a price which is low in view of the special nature of the material and the nature of the fabrication involved. The entire brochure forms a valuable addition to the data dealing with bank vaults and safety provisions, and the wide scope of its information should make it of the first importance to architects, engineers and builders who are concerned in any way with the subject. A long list is given of important banks (other than Federal Reserve Banks) in which Rivet-Grip installations have been recently made. This adds to the booklet's interest.

ANNOUNCEMENTS

Charles A. Sussdorff, for 29 years Executive Deputy of the office of the State Architect, Albany, has opened offices for independent practice at 68 Chapel Street, Albany. Catalogs and samples of manufacturers would be appreciated.

Callix Edwin Miller, formerly associated with William M. Ellwood, announces the opening of offices for independent practice of architecture at 605 J. M. Studebaker Building, South Bend, Indiana. Manufacturers' catalogs would be appreciated.

VAN RENSSELAER P. SAXE, C.E.
Consulting Engineer
STRUCTURAL STEEL
CONCRETE CONSTRUCTION

Knickerbocker Building
Baltimore
The most interesting setting a bath can be given is in the open, away from walls and corners. And now the new Crane Crystal shower provides the final luxury of a curtainless, splash-proof shower adapted to use in any setting in combination with the Tarnia bath. Inclosed on three sides in plate glass, framed in standards of nicked brass, water is led to the overhead needle shower and four horizontal sprays through two of the vertical supports. The hot-and-cold mixing faucet supplies tempered water to the shower, sprays and tub. Large hand grips on main supports at both sides. All valves within easy reach.

The Tarnia bath shown is encased in black and white marble, matching the Neumar lavatory and dressing table. Tiles of any color or pattern can also be used for the setting.
Manufacturers’ Catalogs and Business Announcements

KELLEY ISLAND LIME & TRANSPORT CO., Cleveland.

The fact that lime in one form or another enters into the construction of almost every building erected is reason enough for study of lime and for the careful selection from the many varieties upon the market of the particular kind of lime which would be best suited to the work in hand.

A material of such importance demands that considerable care be used in its manufacture, grading and marketing, as well as in its use, and one of the reasons for the publication of this well presented brochure or booklet is to explain the varieties of lime supplied by this widely known concern, the methods by which lime of different kinds is made, and to give suggestions or instructions by study of which builders and contractors may secure the best results to be had from excellent materials. It is a valuable work upon the subject.

In giving suggestions for the best use of lime, the booklet touches upon a field in which architects feel a particular interest. The plastering of the interior of a building, always a matter of importance, is more important than ever in these days when clients, with perception rendered acute by the growing public interest in architecture, are demanding special varieties of plaster which involve texture as well as color. What is more, the tendency toward the following of definite period styles in interior architecture and decoration often brings a demand for plaster work in relief, which forms a highly important part of the interior architecture of certain of the English styles as well as of some of the styles of Italy and France. Plaster workers today are not always able to procure the patterns or designs which they must have to execute modeling in plaster successfully, and an invaluable detail of this important booklet is including of scaled working drawings for plaster work of various kinds as well as of actual full-sized profiles of mouldings in plaster from which may be build up cornices for rooms of different heights. These designs or patterns include those for a number of all-over designs appropriate for ceilings, ornaments which may be used singly or in groups, patterns for frizes or borders which are useful when a band of plaster extends in frieze fashion around a wood paneled room, and one particularly useful page is that which supplies the details necessary for the wall and ceiling treatment of a public lobby where pilasters support a frieze in Classic fashion with the wall spaces between the pilasters arranged in large panels outlined by egg and dart mouldings worked out in plaster. This brochure, which is well worthy of a place in the working library of every architect or builder, is made in a size which adapts it to the filing system recommended by the American Institute of Architects, thus rendering it easily found when its use is required by the designer or the specification writer.

ANNOUNCEMENTS

Rankin, Kellogg & Crane announce their removal to 1805 Walnut Street, Philadelphia.

Howard H. Hahn announces the opening of new offices at 524 Madison Terminal Building, Chicago.

Henry La Pointe announces the removal of his offices from 152 to 145 East Flagler Street, Miami.

Catalogs of manufacturers will be appreciated.

J. Edward Birmingham has reopened his offices at 45 Warburton Avenue, Yonkers, N. Y. Manufacturers' samples and catalogs are desired.

G. Dunderdale, Architect and Engineer, announces the opening of offices at 451 Mesa Road, Santa Monica Canyon, California. Catalogs and other publications are desired.

Henry A. Cook, formerly Secretary of the firm of John Lowry, Inc., is now associated with Robert B. Skinner, the firm being known as Skinner & Cook, Builders, 280 Madison Avenue, New York.

B. G. V. Zetterstrom has severed his connection with the firm of Santangini, Addo & Zetterstrom, and has opened offices for the practice of architecture at 86 Weybosset Street, Providence.

The firm of Wright & Harper having been dissolved, Byron B. Harper will continue the practice of architecture at 125 West Main Street, Alhambra, California. Catalogs of manufacturers are desired.

With the retirement of T. P. James and the coming into the firm of L. T. Bengtson, the firm of Wysong & James has been reorganized and is now known as Wysong & Bengtson, with offices at Princeton, W. Va., and Charleston, W. Va.

The Thomas M. James Company, Bank Specialists and Equipment Engineers, Boston and New York, announces the reorganization of its New York office at 342 Madison Avenue. As at present constituted, Mr. James is President, F. P. Simonds and W. J. Ball are Vice-presidents, and E. D. Lord is Construction Engineer. Boston office, 3 Park Street.
In newest apartment hotels—

Whale-Bone-Ite Toilet Seats

Most modern, attractive and sanitary—practically indestructible

In modern new apartment hotels tenants expect, and find, the latest conveniences, the finest equipment the world offers. It is easy to understand why Whale-Bone-Ite toilet seats are standard equipment in many of these new de luxe dwellings.

For architects and owners realize that the slightly additional first cost for Whale-Bone-Ite seats not only means greater sanitary satisfaction to tenants, but eliminates upkeep and maintenance expense.

No Deterioration

Here are Whale-Bone-Ite’s ten exclusive features. Each unqualifiedly guaranteed:

- Permanent Durability
- Acid-Proof
- One-Piece Construction
- Non-Inflammable
- Non-Warping
- Permanent Finish
- Sanitary
- No Exposed Metal
- Easiest Cleaned
- Comfortable

Whale-Bone-Ite Seats come in two finishes—mahogany and ebony—to harmonize with the bathroom’s fittings.

Leading plumbers and jobbers everywhere supply the genuine Whale-Bone-Ite. Or write direct to:

Whale-Bone-Ite Division

THE BRUNSWICK-BALKE-COLLENDER CO.

623 South Wabash Avenue, CHICAGO
UNITED STATES RUBBER CO., "Mechanical Rubber Goods for the Building Trades."

The practical merits and advantages of rubber flooring are what have procured its wide use. Added to the excellent qualities inherent in the material itself, which provide quietness, durability, resilience, ease of cleaning and convenience of repair, there are the added qualities which skill and taste in design have given, and the result is a flooring which possesses all the practical advantages of marble besides being pleasant to walk upon and easy to the feet. A floor covered, with square "tiles" of this material in two well contrasted colors, the squares possessing the rich veining of marble, leaves little to be desired upon the score of appearance, while the cementing to the floor and to each other of the squares means the presenting of a surface certain to render the best service which a floor of any kind could be expected to give. In this brochure there are given the facts and data necessary for the best use of this flooring material, and there is also given a list of some of the buildings in which it is being used, among them the Federal Reserve Banks in New York, Cleveland and San Francisco, which have been floored with half a million square feet of "U. S." tile.

This brochure deals with many of the products of the U. S. Rubber Co. useful in the building trades, so data is also given covering stair treads, perforated and corrugated rubber mats, hose of different kinds, belting, sheet packing and rubber covered wires, cables and cords, besides rubber in other forms.


Considerable difference of opinion exists as to the propriety of cleaning marble. The marks which age and wear bestow upon certain materials add to their interest by softening or toning their surfaces, but in many cities, particularly where soft coal is largely used as fuel, the prevalence of smoke and soot works havoc with building materials of all sorts, in some instances even causing such disintegration of stone that historic structures are in danger of collapse. To freshen the appearance of buildings, therefore, recourse is often had to cleaning processes of different kinds, the vast difference in appearance between a building before and after treatment being such that it is likely to encourage the use of renovating processes. Regardless of the propriety of such cleaning, there is the question of processes to be considered. A method frequently adopted is the well known "sand blasting" process, which removes soot and other accumulations, but along with the disfiguring soot it removes something of the surface of the material itself; many will remember the appearance of the historic New York City Hall when some years ago a vigorous use of the sand blasting process left it in a condition as fresh and immaculate as it could have been when new.

In this brochure are given some suggestions for the proper cleaning of marble, not only when used as a building material, but also in monuments, wainscoting and for other purposes. The suggestions are the outcome of much study, and coming as they do from one of the leading marble houses in the country, are of value to architects, engineers, builders, contractors, and others interested in the construction, alteration, or maintenance of buildings.

INDUSTRIAL GAS SERIES; HOUSE HEATING. 91 pp. 9 x 11 ins. Price: $1.50 to Members of American Gas Association; $3 to others. Compiled and Issued by The American Gas Association, New York.

Selection of heating apparatus by architects, engineers or owners is a matter into which there enter various considerations. During the past few years the great difficulty of obtaining coal in certain parts of the country together with its cost has caused a general turning to the use of oil as fuel, while in certain highly favored sections of the United States there exist large deposits of natural gas which supply a fuel which costs little and is ideal in every way. It is used wherever possible.

Use of manufactured gas for heating is undoubtedly growing; indeed it has been said that as the use of gas as an illuminant gives way before the new all but universal use of electricity, the use of gas for such non-lighting purposes as heating and cooking has steadily increased to such an extent that the total use of gas has been increased. Its use for small heaters to heat individual rooms and for cooking upon a small scale is general, but the use of gas for cooking upon a large scale or as a fuel for use in heating systems is necessarily limited by the cost of gas which outweighs even its many advantages. Indeed it would seem that the gas companies themselves recognize the existence of these conditions and are not encouraging the extensive use of gas for these purposes by reason of the difficulties presented by local characteristics and the great investment necessary for plants which would be used only to a very limited extent in comparison to the size required to meet the extremes of demand, which it is difficult to reckon upon.

This brochure is a study into the possibilities of using gas as fuel. It goes with minute detail into all the aspects of house heating by gas and analyzes every detail which has a bearing upon the subject. One of the details which will be appreciated by architects and engineers is the incorporation of some of the standard methods of testing and rating appliances in order to eliminate the confusion due to lack of standards which has so long interfered with the successful application of gas to the heating of homes. Many installations of gas boilers have been total failures, as a result of improper rating which resulted in excessive fuel bills where the boiler was too large, and in unsatisfactory heating when it was too small, a mistake easily prevented.
The equipment supplied by Clow includes: 72 M-3160 Wall-hung Closets; 50 M-3164 Wall-hung Closets; 13 M-3219 Closets; 78 M-4015 Lavatories (on Clow Concealed Wall Hanger); 29 M-4020 Lavatories; 48 M-3480 Urinals; 58 M-5125 Adamantose Slop Sinks; 2 Showers; 4 M-4850 Sinks.

The America Fore Building is one of the large high-class office buildings recently completed in Chicago. It covers the block bounded by Rush, Pearson and Cass Sts., in the new business section opened by the Boulevard Link. To the right of the picture is shown a spire of the magnificent Quigley Seminary, in which is a fine installation of a Clow R-U-V Water Sterilizer.

**Equipped with “Clow Throughout”**

In establishments such as hotels, hospitals, and clubs of many kinds in which there are large numbers of shower baths, it is often found that considerable discomfort and sometimes actual suffering are caused by sudden and unexpected changes in temperatures of water being used. Many a bather has adjusted the water temperatures until they are just right and stepped under the shower, but perhaps other nearby showers are being used, and as their water is turned on there often comes a sudden drop or rise in the water temperature, and the bather may receive a quick shot of cold or scalding hot water, the result if the bather has a weak heart being sometimes disastrous. One large hotel in New York is said to have recently paid large damages for the death of a guest scalded by a sudden torrent of hot water, caused by use of the wrong fixtures.

This, of course, is prevented by the use of valves of the proper kind. There are four essentials of an ideal mixing valve: (1) It should conveniently mix hot and cold water, and maintain the shower at the temperature desired by the bather; it should be absolutely scald-proof. (2) It should control and equalize the changing water pressures. (3) Its cost should be reasonable. (4) It should be sturdily built and have few parts to get out of order.

This brochure presents letters from managers of many clubs, hotels, and institutions of different kinds in praise of the valves made by the widely known Powers Regulator Co., by using which water temperatures are maintained at any degree a bather desires, and discomfort and accidents are prevented.


Modern architecture of almost every kind owes much to the manufacturers of terra cotta. This adaptable material by reason of its moderate initial cost, its extreme durability, and the fact that it may be given highly decorative qualities in which beauty of color supplements excellence of form is naturally in wide and continually increasing use, and a monthly publication issued by this large firm of terra cotta manufacturers is devoted to the illustration and description of certain notable recent installations of terra cotta in different parts of the country.

One recent issue of this little publication deals with a restaurant structure at Coney Island of which Dennison & Hirons are architects, a building of stucco, elaborate and beautiful use of terra cotta being seen in capitals of columns, in arches and soffits, window boxes, the roundels which are placed in the spandrels of the arches and between certain round-topped windows, and particularly the details about the oval windows set in the pylons at the corners of the structure. The location of the restaurant pavilion, near the water’s edge, probably suggested the use of designs showing sea life in many forms as decorations,—Venetian galleons, Elizabethan ships, Neptune, his trident, shells, fish, lobsters, snails, etc., and the most lavish decoration is about the aforementioned oval windows where all these and other emblems are massed, combined with the “dripping water” motif, worked out with lavish use of colors and gold, all this contrasting pleasantly and richly with the gray of the rough-cast stucco walls.


Difficulty and uncertainty of securing prompt deliveries of some kinds of fuel and the high costs of fuel of any kind render it necessary to practice due economy in their use. Then too it has been found, in buildings of every kind, from the smallest residence to the largest office, apartment or manufacturing structure, that by careful and conservative operation of the heating plant it is quite possible to increase the comfort of the occupants while promoting the economy which is so desirable. It is easy to see that by the use of anything which promotes economy and adds to comfort every desirable end is served, and this is done when advantage is taken of the various appliances which the ingenuity of manufacturers has devised for use with heating systems.

In this booklet or brochure, issued by a firm which is among the leaders in its field, there are illustrated and described a large number of appliances for heat regulation. For example there is the now well known Minneapolis Heat Regulator, rendering the service which its name implies, and adaptable to any type of furnace or boiler, including various types of closed systems of hot water heating, vapor boilers with different kinds of pressure regulators, diaphragms, etc. Other appliances supplied by this firm and illustrated and described in this booklet are room thermostats, eight-day thermostats, one-day thermostats, pressurestats, motors of different kinds, valves, and a wide assortment of accessories. The firm maintains a service department equipped to advise architects and engineers as well as to render help in other ways, and in this brochure the services of this department are offered to those who require them. The work is invaluable to architects and engineers and should be found in every library.

VAN RENSSELAER P. SAXE, C.E.
Consulting Engineer
STRUCTURAL STEEL CONCRETE CONSTRUCTION
Knickerbocker Building Baltimore
An inclosed shower bath, lighted, ventilated, free from clinging curtains, yet entirely splash-proof, has long been the ideal of discriminating home makers. Costly built-in construction seldom results in the perfect comfort desired.

The Crane Crystal shower satisfies the most exacting standards of beauty, luxury and convenience. Plate glass incloses three sides. Four horizontal sprays supplement the overhead needle spray. In combination with the Turnia bath, no more space is required than for an ordinary tub. They can be installed in the most interesting of all settings, in the open, away from walls and corners. Plaster or tiles may replace the black and white marble encasing the Turnia above.

Crane plumbing and heating materials, sold by contractors everywhere, include fixtures within reach of all. Write us for “The New Art of Fine Bathrooms.”
Manufacturers’ Catalogs and Business Announcements


So frequent are the changes in design of fittings of every kind used in electrical work that architects and builders, and possibly even electricians themselves, have difficulty in keeping abreast of the changes. A detail which seemed when it was introduced to be perfection soon gives way to another.

This carefully prepared and well presented catalog is replete with illustrations and data covering all the vast number of fittings made by this well known manufacturing concern, and its helpfulness in any one of many ways would entitle it to a place in the office of every architect, engineer or builder who is interested in the latest and most approved practice.

ANNOUNCEMENTS

George P. Turner has opened offices at 1420 American Trust Building, Birmingham, Alabama. Manufacturers’ samples and catalogs are desired.

Roy G. Pratt is occupying new offices in the Franklin Trust Building, 15th and Chestnut Streets, Philadelphia. Manufacturers’ samples are desired.

Edward M. Adelsohn, Architect and Engineer, announces the opening of new offices in the Municipal Bank Office Building, Pitkin and Stone Avenues, Brooklyn.

Ernst W. Nietz, Jr., Construction Engineer, has recently opened offices at 187 Wyoming Avenue, Wyoming, Pa. He would be glad to receive catalogs and other advertising matter from manufacturers.

I. Albert Baum and Jefferson M. Hamilton announce the formation of a partnership for the practice of architecture under the firm name of Baum & Hamilton, in the Columbian Tower, Memphis.

The firm of Moloney & Hallahan having been dissolved, Henry J. Moloney, formerly with Welles Bosworth, Clinton & Russell and the Thomas M. James Co., will continue practice at 342 Madison Avenue, New York.

Harry J. Brumenshenkel announces that J. Leonard Rush, formerly connected with Vernon Redding and Associates, is now associated with him in the general practice of architecture at 42 Park Avenue, Mansfield, Ohio. Catalogs and samples are desired.

Clare C. Hosmer, for the past two years the Managing Director of the Chicago Architectural Exhibition, has become connected with the Martin Studios, Sarasota, Florida. The organization is now known as the Martin-Hosmer Studios, Inc., with offices at Sarasota and Ft. Myers, Florida. Catalogs and samples of manufacturers and dealers are desired.

Arthur G. Tafel has recently opened new offices at 140 South Third Street, Louisville.

Raymond M. Marlier announces the opening of new quarters in the Empire Building, Pittsburgh.

W. A. Schabel and A. J. Grimm announce the opening of offices at 335 Erie Building, Cleveland.

Fred B. Klein announces the opening of offices for the practice of architecture in the Commercial National Bank Building, High Point, N. C.

Ernest A. Grunsfeld, Jr., and Eugene Henry Klaber announce the opening of offices at 81 East Madison Street, Chicago. Manufacturers’ catalogs would be appreciated.

The firm of Happ & Shelverton having been dissolved, Frank R. Happ will continue the practice of architecture in the offices formerly occupied by the firm in Macon, Georgia.

McCarter & Nairne, Architects and Structural Engineers, 509 Richards Street, Vancouver, B. C., would appreciate receiving catalogs and other printed matter from manufacturers.

William Koehl announces the association with him in the practice of architecture of Antonio Di Nardo, the firm being known as Koehl & Di Nardo with offices in the Park Building, Cleveland.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, OF THE ARCHITECTURAL FORUM, Published Monthly at New York, N. Y., for October 1, 1924

Before me, a Notary Public, in and for the State and County aforesaid, personally appeared Robert Sweet, who, having been duly sworn according to law, deposes and says that he is the business manager of The Architectural Forum and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher—Rogers & Mannion Co., 383 Madison Avenue, New York, N. Y.

2. That the owners are: Rogers & Mannion Co., 383 Madison Avenue, New York, N. Y.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing all full knowledge and belief as to the circumstances and abilities under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

WILLIAM A. LOW, Notary Public.

ROBERT SWEET, Business Manager.

Sworn to and subscribed before me this 9th day of October, 1924.

My commission expires March 30, 1925.
The OLYMPIC HOTEL, Seattle, Wash.: Geo. B. Post & Sons, New York, Architects; Seattle Plumbing Supply Co., Jobbers; Ashwell & Twist, Seattle, Plumbers

One of the finest hotels on the Pacific slope—the Olympic—is nearing completion in Seattle.

This impressive hotel will have Kohler "Viceroy" built-in baths in 549 of its 609 bathrooms (other bathrooms being equipped with shower baths only).

* * *

The selection of Kohler Enameled Plumbing Ware for the Olympic and other installations of the first importance reflects the favor which this ware has won with architects through its beauty of design and the durability and uniform whiteness of its enamel.

The mark "Kohler, U.S.A." unobtrusively fused into the enamel of every Kohler fixture, betokens the maker's pride in a worthy product.

KOHLER
Kohler Co., Founded 1873, Kohler, Wisconsin
Shipping Point, Sheboygan, Wisconsin

BRANCHES IN PRINCIPAL CITIES

MANUFACTURERS OF ENAMELED PLUMBING WARE AND KOHLER AUTOMATIC POWER AND LIGHT 110 VOLT D.C.
Manufacturers’ Catalogs


Reliable and economical heating is not entirely a matter of using sufficient fuel in a system which is of the best and which is equipped with all the devices which make for excellent service while promoting economy. Much depends upon devices for excluding the cold, and chief among such devices is the weatherstrip which prevents the entrance of strong currents of air through the crevices between window sash and the frames in which they are held. The same skill which has been devoted to perfecting other details of equipment has been directed toward perfecting the weatherstrip, which now appears in a form which represents efficiency itself. Ordinary, so-called weatherstripping keeps out very little of the cold air, dust, dirt, soot and noise. If fitted too tightly, the window sticks and is hard to operate; if applied in any other manner the windows rattle; it is unsightly and a constant annoyance and expense.

Since the days of the old wood and rubber weatherstrip there have been many improvements, but perfection was to be attained only by study and experiment, and to this concern, long known for the excellence of its output, belongs the credit for continuing research and experiment until it was possible to offer to the building public the Athey Cloth-Lined Metal Weatherstrip, described in this folder.

This equipment consists of a metal (zinc) rail, shaped with a tongue or sealing rib at a right angle to the base, in the back of which is inserted a strip of cloth; this rail is placed in the runway of a window and fastened in place, the cloth in back of the rail preventing any back leakage. In a groove made in the edge of the sash is placed a metal cloth-lined channel, securely fastened in place and in the cloth-lined channel the tongue or sealing rib of the rail operates easily, maintaining at all times a perfect contact. Dampness cannot pass it. It is therefore a great boon to rheumatic sufferers and others affected by dampness and humidity; it is now in use in many of the leading hospitals throughout the country for this and other reasons.

Drafts are impossible from windows equipped with it, and no soot or dust of any kind can find its way through. It is the only equipment that is successfully used in the southwestern section of the country, where dust storms are of frequent occurrence. Wherever soft coal is used the value of this weatherstrip there have been many improvements, but perfection was to be attained only by study and experiment, and to this concern, long known for the excellence of its output, belongs the credit for continuing research and experiment until it was possible to offer to the building public the Athey Cloth-Lined Metal Weatherstrip, described in this folder.

In a large building on Chicago’s lake front, the installation of Athey Cloth-Lined Metal Weatherstrips saved 572 tons of coal in one heating season. At an average of even $6 a ton for coal that means a saving of $3432. Yet the cost of installing the Athey strip was less than $5000. The name of this building, and the engineer who furnished this data will be given anyone interested upon request.

THE ABERTHAW COMPANY, Boston. “Factory Floor Surfaces.” An Excellent Work on Floor Construction.

In the designing and planning of an industrial structure the architect and builder may well devote considerable care and thought to the problem presented by the floors. The wear and tear which many manufacturing processes and forms of industry cause to the floors of industrial structures necessitate the installation of the floor best adapted for such use, and of the utmost importance are the welfare and comfort of the workers or operators, so large a part of whose lives is spent in such a structure.

In this little book A. B. MacMillan, Chief Engineer of the Abethaw Company, discusses the uses of different types of flooring. Floor surfaces divide themselves into three main classes,—(1) wood; (2) granolithic; (3) special materials or proprietary floorings, and each has its advantages which are here set forth and considered. Mr. MacMillan goes with thoroughness into so important a subject, and discusses methods of manufacturing or laying as well as the matter of proper materials or ingredients which compose mixtures of cements, concretes, and similar substances, in all this drawing upon the experience and the store of information and data which the Abethaw Company has built up during years.


The service rendered by the United States Bureau of Standards is valuable to architects, engineers, builders and others to whom accurate knowledge of qualities is important. Recently there has been issued this bulletin based upon research into some matters concerning lime, done by the Bureau and giving the results secured. Tests were made, and the result as published in this bulletin shows conclusively that hydrated lime naturally improves the workability of concrete without exerting a deleterious effect upon the concrete’s compressive strength. Workers in concrete find that while strength is of great importance, it is nearly always necessary that work of this character be also pleasing in appearance, and the appearance of structures of concrete depends largely upon the workability of the mixture. Copies of this valuable little brochure will be sent to those who write requesting them to the National Lime Association, 918 G Street N.W., Washington.
The equipment supplied by Clow includes:
79 M-3194 Closets; 516 M-4020 Lavatories;
1 M-4150 Manicure Lavatory; 36 single M-
3483 Urinals; 2 batteries of 3 M-3483 Uri-
nals; 40 M-5140 Slop Sinks.

**Equipped with “Clow Throughout”**

The Burnham Building, Randolph and LaSalle Streets, Chicago, is one of the principal new office buildings in the business and financial section of the city. In size and character it is an outstanding example of a modern business building furnishing the highest class of accommodations and service.

JAMES B. CLOW & SONS

*General Offices*

534-546 S. FRANKLIN ST., CHICAGO

*Sales offices in principal cities*
Manufacturers’ Catalogs and Business Announcements

LIBBEY-OWENS SHEET GLASS CO., Toledo. “Flat Glass.”
A Work on Use of Glass in Windows.

Use of glass of excellent quality in windows even in buildings of the smallest possible cost is now so general that it seems hardly possible that its use is comparatively recent. In this valuable little volume on the subject we are told that glass was beginning to be used in Rome for windows when Roman civilization was over-run by barbarians from the north of Europe, and that excavations at Pompeii show that glass was used for the windows of certain famous baths. Santa Sophia, built by Justinian in the fifth century, was provided with window screens or frames pierced with openings to receive small sheets of glass, and during the reign of Elizabeth, the great Duke of Northumberland, on leaving his castle, was warned by his steward to remove the glass from its windows to prevent its being stolen.

The present widespread use of glass would seem to be due largely to the study and research of Irving W. Colburn, to whom indeed this work is dedicated. An account is given of his efforts, made in the face of almost insuperable difficulties, which led to the revolution in the manufacture of flat glass as we know it. The little volume contains much which is interesting and valuable as bearing on the historical and technical sides of the subject of window glass.


Comfort of the occupants of any kind of a residence structure, and indeed of a structure of almost any sort, is to a great extent dependent upon the facilities which are provided for supplying hot water to bathrooms, lavatories, kitchens, pantries, laundries and departments of many kinds. To meet this demand for heaters of countless different types and as widely varying capacities, certain manufacturers have placed upon the market heaters which will serve economically the tiniest cottage or a hotel, apartment house or hospital where the demands are heavy. Selection of a water heater is important.

In the various brochures, catalogs and other publications named here there is covered completely the line of heaters which this widely known manufacturing firm supplies, a line so complete and well balanced that there could be no demand so small or so large that an appropriate heater could not be promptly supplied to meet the needs. It is particularly interesting to note the part which the thermostat plays in connection with some of these Ruud Heaters. It serves a two-fold purpose,—economy and safety. It means economy in that it proportions the quantity of gas used to the amount of water to be heated, turning off the gas automatically when the water has reached necessary temperature.


There are countless instances where it is necessary that a large room of some kind be divided at times into a number of smaller rooms without impairing its value for use as one large room where it is necessary to use it as such. This is frequently the case in hotels or clubs where a large banquet room or restaurant is fully as useful when divided into several private banquet rooms or smaller dining rooms. Such subdivision of space is also frequent in churches, and particularly in schools where an auditorium or assembly room may be used ordinarily for a number of classrooms. Sometimes the cost of heating or lighting a large room is avoided by the simple expedient of converting part of it into a smaller room. In all these instances use is being made of movable partitions,—either of the type which when not in use can be folded back against the wall or into wall pockets, or of another type which when not in use can be rolled up.

This brochure fully describes and illustrates the movable partitions of both types made by the J. G. Wilson Corporation. Every detail of data which could be desired by an architect or builder is given, and the mechanism of both types is indicated in diagrams, while in many illustrations there is fully demonstrated the important fact that the use of these partitions in no wise injures the appearance of the rooms where they are used.

Quite as important to a school as movable partitions are the wardrobes which are used for containing the children’s clothing. It has been found in some instances that having wardrobes in the schoolrooms rather than in separate rooms is more economical of floor area. When desired such wardrobes may be connected with the ventilating system of a building. Like the movable partitions, the doors of such wardrobes may be arranged to operate in various ways,—in usual door fashion or built to disappear into the wardrobes; or instead of doors the wardrobes may have fronts which fold or roll as do the partitions. The wardrobes made by the J. G. Wilson Corporation are fully as well and favorably known as the partitions made by the same concern, and this brochure gives all details necessary for their use.

VAN RENSSLEAER P. S A X E, C.E.
Consulting Engineer

STRUCTURAL STEEL
CONCRETE CONSTRUCTION

Knickerbocker Building Baltimore
IN the Tribune Tower, the "world's greatest newspaper" is seeking to give America its most beautiful office building. The hundred thousand dollars invested in the Tribune architectural competition indicate how far the owners were willing to go in order to find worthy architects.

They were equally as scrupulous in the choice of materials of construction and equipment. In every detail, they sought to preserve the spirit of dignity and fortitude of their newspaper. Cost was not their first consideration, yet the conservative policy of the Tribune forbade lavish expenditure.

The unanimous decision of both owner and architect on Crane plumbing and heating materials is a recognition of Crane quality which is deeply appreciated. To create fixtures, valves and pipe fittings which appeal through their quality, charming designs and economy of lasting service, is ever the rule and guide of Crane design and manufacture.

Manufacturers’ Catalogs and Business Announcements

NATIONAL STEEL FABRIC CO., Pittsburgh. "Reinforced Concrete Sidewalks, and Cellar and Garage Floors." Important and Valuable Data on Concrete.

Notwithstanding the great value of concrete for laying driveways, sidewalks and the floors of garages and cellars, it is of course open to the objection that as generally used it often cracks and breaks easily, particularly when exposed to rain which, when it has turned to ice, has a tendency to cause cracking. Concrete has great compressive (crushing or wearing) strength, but like glass it is deficient in tensile (breaking) strength, having only about 1/150 the tensile strength of steel. It was found many years ago that in order to obtain from concrete the utmost possible in the way of structural utility the material must be suitably reinforced, and the wide and constantly increasing use of concrete is due in large measure to the skill of engineers in designing systems of reinforcing.

The use of steel in reinforcing an actual structure of concrete is of course well understood, but the application of much the same principle to strengthening concrete roadways and floors has been slower to develop. The same principle applies, nevertheless, and in this folder illustrations and diagrams explain the use of National Steel Fabric which is laid upon the first layer of concrete, acting as strong reinforcement to the upper layer. The cost of this reinforcement could add but little to the expense of constructing any work in which it would form part, but it more than pays for itself by adding years to the life of a floor or roadway and by the prevention of unsightly breaks and cracks. The use of the fabric presents no problem which the average concrete worker could not master, the illustrations and directions for use given in this folder, in fact, being full and complete and easily followed.


Someone observed recently that the amount of money paid out annually by many a large concern in the form of damages for personal injuries due to slipping and falling would more than pay the cost of preventing any outlay for such injuries for all time to come. Many of the substances likely to be much used for flooring present surfaces which are dangerously slippery, particularly when wet, and it is highly important to use for the treads of stairways, for ramps, areas about elevators or machinery, some material which is not only not slippery to begin with, but which will not become so when wear has worn away the original surface and made the material smooth.

This brochure fully describes the flooring material produced by this well known concern. The first Norton Floor was known as “Alundum Safety Tile.” It was so successful in solving the problem of slippery and fast-wearing stairs in places where there had been a hazard that further developments followed. Now there are Norton Floor materials with a non-slip surface suitable for all kinds of buildings, including the highest type of hotel, municipal and office structures, where this product is used in connection with marble, granite, tile and similar building materials.

The principal classifications of Norton Floor products are: Alundum Floor and Stair Tile (semi-vitreous); Alundum Ceramic Mosaic Tile and Treads; Alundum Aggregates; Alundum Aggregate Tile and Treads, and each of these products is described briefly in this booklet.

PITTSBURGH PLATE GLASS COMPANY, Pittsburgh. “Glass and Paints.” Their History and Use.

In a carefully written and richly produced volume this firm, one of the foremost among the leaders in its field, issues a treatise upon two materials which, perhaps because they have much in common, are closely associated in the public mind—glass and paint. Unless one had made a study of glass it would hardly be supposed that its history reads like a romance from the Arabian Nights; use of glass in one form or another is enormously old, and each of the many varieties of glass demands study of a matter which is a subject entirely to itself. The particular branch of glass manufacture carried on by the Pittsburgh Plate Glass Company rewards any amount of study which may be given to it. So, too, with paint, without which the modern world would be colorless.

This valuable volume deals not only with the history of glass and paint and the methods of their manufacture, but goes with equal fullness into a description of all the products made by the firm—glass, paints, varnishes and many kinds of brushes.

ANNOUNCEMENTS

G. H. Carsley, Architect, announces the opening of new offices at 634 Mound Street, Helena, Mont.

Talmage C. Hughes has opened new offices for the practice of architecture at 2615 Joy Road, Detroit.

John Noble Pierson & Son, Architects and Engineers, announce the opening of new offices at 200 Jefferson Street, Perth Amboy, N. J.

Alexander Fraser Rose, Engineer and Architect, announces his removal to 510 Essex Building, Minneapolis. Catalogs and samples of manufacturers are desired.

Thomas J. Collopy has opened an office for the practice of architecture at 607 Copin Building, Covington, Ky. Manufacturers’ catalogs and other publications and samples of materials are desired.
The Proof of

SERVICE

In practically every great American city colossal buildings bear testimony to the prestige of a well known building material for wall and floor construction. Throughout the nation that same material has brought comfort, service and beauty to countless homes. For buildings large or small; for homes of moderate or high cost, Natco Hollow Tile is an ideal and adaptable building material. It can be recommended with confidence because it has stood the test of service for many years.

Natco Bulletin 171 (Standard Fire Proofing) and Natco Bulletin 174 (Wall Construction) will be promptly mailed on request. Send a card or your letterhead.

National Fire Proofing Co.
402 Fulton Building - Pittsburgh, Pa.

NATCO HOLLOW BUILDING TILE
Automatically Purifying Swimming Pool Water

Sterilizing Water With Light

The R-U-V ultra violet ray method of water sterilization is extremely simple—yet highly effective. The water is exposed to the purifying ultra violet rays of a mercury vapor quartz lamp. These rays are deadly to disease-producing bacteria. By circulating the water about the lamp in a thin film the exposure and, consequently, the thorough sterilization of each drop is assured. Sterilization takes place instantaneously. There is no chance that only a portion of the water will be sterilized.

R-U-V Sterilizers are available for swimming pools, individual drinking water systems, municipal water supplies, and bottling plants. Though the installation cost is higher than that of most chemical-treating outfits, the resulting low operating costs and the absence of high depreciation charges make the cost per gallon of pure water used exceptionally low.

An interesting booklet has been published by our engineering departments. It gives detailed information regarding the R-U-V process and the results that have been obtained in various installations. Simply write for Booklet A-12.

The human element that plays so large a part in the control of other types of water sterilizing apparatus is entirely eliminated by the R-U-V, ultra violet ray, process.

A simple turn of a switch—similar to the switching on of an electric light—and human responsibility for sterilizing regulation ends. From then on, the R-U-V, ultra violet ray, Sterilizer handles its job of rendering germless each drop of recirculated water independently of human control.

Since the R-U-V, ultra violet ray, Sterilizer does not rely upon dosing the water with germicidal chemical solutions, there is no dosage to regulate to suit the ever-changing bacterial content of the water.

And, there is no haphazard guessing as to the amount of dosage necessary.

This positive and automatic action of the R-U-V, ultra violet ray, Sterilizer makes it especially desirable for swimming pool use. The building janitor, the swimming instructor or practically anyone can take care of its simple operation and maintenance—and have 100% removal of disease-producing bacteria assured.

The simplicity of operation and the positive results delivered are clearly shown in a recent publication of our engineering departments. A copy may be had upon request. Simply ask for Booklet A-12.
They will cut your cost per foot where piles must be over 40 ft. long or water level is not over 22 ft. below cut-off. And you can be certain of perfect alignment and maximum strength throughout.

Raymond Concrete Pile Co.
New York: 140 Cedar St. Chicago: 111 W. Monroe St.
RAYMOND CONCRETE PILE CO., Ltd.
Montreal, Canada

"A form for every pile—A pile for every purpose"
In selecting the heating boiler for this building, the fixed policy of the Dollar shipping interests was followed requiring best quality regardless of first cost, the same as is given their passengers:—like the Dollar line service.

For centuries, smoldering heat from braziers, full of red hot lumps of powdered coal puddled with clay, has smoked up these homes of China.

Kewanee Steel Heating Boilers. Nationally and Internationally Known

Kewanee Boiler Company Kewanee, Illinois

Steel Heating Boilers, Radiators, Tanks, and Water Heating Garbage Burners

BRANCHES

ALTANTA, GA
1522 Candler Bldg.
135 Bernard Court
1226 James Bldg.
822 W. Washington Bldg.
P. O. Box 75

CHARLOTTE, N. C
COLUMBUS, OHIO
809 Candler Bldg.
1226-1228 California St.
515 Hubbard Bldg.

CHICAGO, ILLINOIS
DETROIT, MICH
1722 W. Lafayette Blvd.
1236 Monroe Ave.

CINCINNATI, OHIO
INDIANAPOLIS, IND
211 Indiana Term. Warehouse
2014 Wyoming St.

CLEVELAND, OHIO
KANSAS CITY, MO
1812 Exchange Bldg.
2014 Wyoming St.

COLUMBUS, OHIO
LOS ANGELES, CALIF
510 Columbus Bldg.
400 E. Third St.

DALLAS, TEXAS
MEMPHIS, TENN
835 Merchants & Mfg. Bldg.
635 Merchants & Mfg. Bldg.

DENVER, COLO.
MINNEAPOLIS, MINN
1226-1230 California St.
307 Hubbell Bldg.

DES MOINES, IOWA
MINNEAPOLIS, MINN
125 E. Madison Ave.
708 Builders Exchange Bldg.

DOMINION KEWANEE BOILER COMPANY, LTD., Toronto, Ont.

ST. LOUIS, MO
420 Forest Park Blvd.
SALT LAKE CITY, UTAH
204 Denver Bldg.

SAN ANTONIO, TEXAS
502 Calhoun Bldg.
SAN FRANCISCO, CALIF
Postal Telegraph Bldg.

SEATTLE, WASH
CENTRAL BLDG
SPOKANE, WASH
506 Empire St. Bldg.

TOLEDO, OHIO
1121-22 Nicholas Bldg
NEW YORK, CITY, N. Y.
47 West 42nd St.

PHILADELPHIA, PA
516 Real Estate Trust Bldg.
Plaster free from cracks—

The effect of the most graciously conceived architectural design is marred by cracked plastering.

Many architects, therefore, as a precautionary measure specify a plastering base which is also a reinforcement.

KNO-BURN Metal Lath has for so many years proven so satisfactory for this purpose that a trial almost invariably results in its continued use.

This nationally known lath has every attribute of the perfect plastering base—absolute "keying" qualities, marked economy in the use of mortar, a flexibility that commends its use especially for ornamental plastering, combined with a firm, rigid surface that permits maximum coverage.

While the cost of using KNO-BURN Metal Lath throughout in residential work is inconsequential compared with the advantages derived, yet where expense must be kept down to minimum, it is recommended that this fire and crack-preventing plastering base be used in the ceilings of principal rooms, in the bathroom and over the heating plant.

*May we send your specification writer samples and copy of our "Recommended Specifications?"*

NORTHWESTERN METAL CO.
1234 Old Colony Bldg., CHICAGO

"THE STEEL HEART OF PLASTER," STOPS FIRE—PREVENTS CRACKS
"Every church or secular auditorium either meets a recognized economic need or it fails. And poor acoustics is a bid to failure."

*MacDowell*

The experience of our clients shows that correctly designed acoustics is a most important investment. And not expensive. One theatre owner got better productions for his re-designed house—at an increased cost of only one dollar per day interest charges. Send for the book many architects are now discussing, "Acoustics in Building Design." Free.

**Macoustic Engineering Company, Inc.**
**Bulkley Bldg., 1501 Euclid Avenue**
**Cleveland, Ohio.**
Ceiling and roof dome of Central Hall in Guastavino Construction with soffit course of

**AKOUSTOLITH Sound Absorbing Tile**

upon which the artist and architect has applied a highly ornamental design in color and gold.

This is an original conception of Mr. Goodhue in combining an efficient acoustical treatment with a highly decorative design.

**R. GUASTAVINO COMPANY**

40 Court St., Boston, Mass. 1133 Broadway, New York, N.Y.

_John Lindsay_  
_C. G. Porter & Co._  
_William J. Banks_

_Toronto, Ontario_  
_Montreal, P. Q._  
_Quebec, P. Q._
CERAMICS IN
ANCIENT EGYPT
BABYLONIA
AND ASSYRIA

ARCHITECTURAL MONOGRAPH
NUMBER TWO — NOW READY

THIS thirty-two page publication, profusely illustrated
with authentic examples of historic precedents showing
the utilization of ceramics in the architecture of the
period, is the second in a valuable series of fourteen
Monographs. Tiles — their historical lineage and
earliest uses in the oldest civilizations — are discussed
authoritatively and completely by Rexford Newcomb, Professor of
History of Architecture, University of Illinois, with emphasis on
the various styles of each of the three countries.

Monograph No. 2 provides an opportunity for architects, artists and designers
to familiarize themselves with the ancient motifs, designs and stylistic effects
achieved upon floors, walls and other surfaces with tiles. In this series,
present-day tendencies in decorative expression are readily traced to their
primitive origin. Ceramic derivations from the earliest times are brought
out clearly.

Copies of this second Monograph, and succeeding issues of the series, will
be forwarded to interested architects upon request. Please make request on
your office stationery.

ASSOCIATED TILE MANUFACTURERS
BEAVER FALLS PENNSYLVANIA

Alhambra Tile Company
American Encaustic Tiling Co. Ltd.
Beaver Falls Art Tile Co.
Grueby Faience & Tile Co.
Matawan Tile Co.
Mosaic Tile Co.

Producers of
Beautiful Tiles

National Tile Company
Old Bridge Enameled B. & Tile Co.
Perth Amboy Tile Works
The C. Pardee Works
United States Encaustic Tile Works
Wheeling Tile Company
Arc-welded—with steel's own strength

When you consider (added to the economy feature of Simplex Boilers) the fact that every seam is electrically welded, thus gaining 98% of the strength of steel plate itself, you begin to realize that this boiler is well worth investigating.

And the Simplex will save fuel (any fuel, oil included)—25% at least. Thus for the cost of cast-iron your client gets a welded steel boiler—one that turns even the soot and smoke into heat. Easy to clean; easy to tend. One piece construction; and saving of floor-space.

Let us send you details of this scientifically-right boiler. Your client will appreciate your investigation of the Simplex. Drop us a line.

HEGGIE-SIMPLEX BOILER CO., JOLIET, ILL.

CHICAGO SHOW ROOMS: 2436 WEST FIFTEENTH STREET

Baltimore  Charlotte, N. C.  Kansas City, Mo.
Cleveland  Cincinnati  Memphis
Columbus  Denver  Detroit  Minneapolis
Houston  Indianapolis  Oklahoma City
Indianapolis  Omaha  Pittsburgh  St. Louis
The Whole Story of Mortar Colors

HERE is the most complete guide to the use of Mortar Colors ever published. It tells, in detail, just how to produce brick mortar of many different colors and illustrates these colored mortars in combination with many kinds of brick.

It also illustrates, in color, several shades of stucco and tells just how to produce these shades with Clinton Mortar Colors.

A card will bring you this new folder, just off the press.

The Clinton Metallic Paint Co.
5 Clinton Road
Clinton, N. Y.

Clinton Mortar Colors
Nature's Permanent Colors. Made since 1887.
The Garage Building Business

EVERY Architect is desirous of developing new business. The Garage Building Business still remains untouched by a great many Architects, simply because the extent to which it is developing is not fully realized.

The Record of Contracts signed by this Company for the use of the d'Humy Motoramp System of Inter-Floor Travel discloses a total of 1,265,598 sq. ft. of floor area for the months of August, September and October. This activity is country-wide as evidenced by the fact that these garages are located in the following cities:

- Atlanta, Ga.
- Chicago, Ill.
- Miami, Fla.
- Memphis, Tenn.
- St. Louis, Mo.
- Seattle, Wash.
- Cincinnati, O.
- Providence, R.I.
- Los Angeles, Calif.
- Columbus, O.
- Detroit, Mich.
- New York, N.Y.
- Montreal, Que., Can.

Further, the Garage Industry is developing a very definite science with which Architects will wish to maintain their contact.

The Architect who is not receiving our Garage Design Data Sheets (sent without obligation), will wish to have those issued to date, as well as have his name recorded for future issues.

RAMP BUILDINGS CORPORATION

21 East 40th Street
New York, N.Y.
BUILD WITH TERRA COTTA

These illustrations represent ornamentations on the new FRANK & SEDER store, (The Ballinger Co., Architects) now being erected at Market and 11th Streets, Philadelphia. This building is to be faced and trimmed with our White Matt Glazed Architectural Terra Cotta.

The Architects and owners naturally selected ARCHITECTURAL TERRA COTTA as one of the best mediums to secure permanency, and at the same time secure the artistic effects that would be prohibitive in cost by the use of other materials.

CONKLING-ARMSTRONG TERRA COTTA CO.

410 Denckla Building

CLOISTER BRICK

A BRICK that will bring out the utmost beauty of your designs. Its soft, even texture, like silk velvet, gives to the finished brick wall the coveted charm of simplicity and of quiet dignity.

The four shades of red and brown in which CLOISTER BRICK are made befit its distinctive texture. They are rich—glowing. They give life and character to your structure.

CLOISTER BRICK are shale. They are side cut. They are impervious. They are without glaze —and they are inexpensive.

You will want our booklet "The Cloister Brick." Write Dept. 18

WESTERN BRICK COMPANY
Danville, Illinois
Capacity over One Hundred Million Annually

Fiske Brick

ARCHITECTS who seek distinction in color and texture of face brick find the answer in Fiske Brick.

"TAPESTRY" — The rough-textured brick with a wealth of color variations.

"FISKLOCK" — The two-in-one brick with the beauty of "TAPESTRY."

Fiske & Company
Incorporated
NEW YORK BOSTON WATSONTOWN, PA.
WHERE PRECEDENT MEETS MODERN REQUIREMENT

Early Italian precedent in Terra Cotta furnishes many motives splendidly adapted to the decorative enrichment of the modern zoning law skyscraper.

Polychrome coloring as perfected in modern Terra Cotta enables low relief ornament to carry effectively at great heights, eliminating necessity of widely overhanging projections for ornamental effect. Mass and silhouette are thus left to assert beautifully their proper dominance.

We will gladly assist architects interested in the use of color by furnishing literature broadly helpful in its treatment of the subject. Address

NATIONAL TERRA COTTA SOCIETY

19 WEST 44th STREET
NEW YORK, N. Y.
An object lesson in building upkeep——cleaners at work removing the grime and soot that had accumulated during a quarter of a century on the Rose Building, Cleveland, Ohio.
At small expense and with comparative ease, Northwestern white enamel terra cotta facing is restored to its original freshness and beauty.
This building was designed by George H. Smith, Architect, and built in 1898.

**The Northwestern Terra Cotta Company**

**Chicago**

**Western Plant—The Denver Terra Cotta Company, Denver, Colorado**
A NEW BOOK
FOR THE DRAFTING ROOM

Here is a book— "English Precedent for Modern Brickwork"— that will be of real interest to the architect and the architectural draughtsman. The measured drawings will be helpful in the drafting room, while the halftone plates and text give a clear picture of the beauty and craftsmanship of English brickwork.

The book is especially timely since much of the best present-day American brickwork finds its inspiration in English precedents.


The text is illustrated by 43 halftone plates and 28 measured drawings. The colored frontispiece is by Otto Eggers.

"English Precedent for Modern Brickwork" will be sent to any address in the United States or Canada upon receipt of two dollars.

Address, American Face Brick Association, 1751 Peoples Life Building, Chicago, Illinois.
Something ENTIRELY NEW

A scholarly architectural monograph on a NEW kind of Brickwork

THIS IS THE FIRST NUMBER of the first volume of an exceptionally interesting series of publications devoted to various phases of the use of Common Brick, edited by a well-known architect, and by text and large illustrations explains a novel method of securing strong and striking effects with Common Brick. The title is

YOUR COPY IS READY NOW

Drop a card for it in the mail TODAY

BRICKWORK WORKING DETAILS

VOLUME I ~ NUMBER I

"Skintled Brickwork"

New methods of obtaining interesting surface effects with common brick as developed and exemplified by Chicago architects

This is probably the most interesting application of any constructional material that has been developed in recent years, and the photographic views of the various possibilities have been taken at large scales and with extreme care; and are such that the workman can work direct from them and secure exactly the same results or any desired modification. Your copy of this publication is ready for the mail—will you please write for it?
THE new linoleum, "for every floor in the house," shown here is Armstrong’s Jaspé, light gray, No. 13. Into the jaspés go varying tones of a single color, to produce this pleasing effect of dull jasper.

Jaspé linoleum in neutral two-tone grays is a good foundation for color schemes of living-rooms, dining-rooms, and bedrooms. How much more harmonious with tinted walls of pastel greens, for instance, or creams or blues or grays is this jaspé than floors of shiny yellow or monotonous brown!

You can add to the beauty and distinction of jaspé floors by surrounding them with borders.

The plate pictures a border of black linoleum, color No. 27. Your decorative plan may call for a border of blue or green or plain dark gray. There are other jaspé colors, too—blue, green, dark gray, light brown, and dark brown. Thus you see the unusual color possibilities of the modern linoleum floor.

For the residence, apartment, office, business house, or public building, wherever you want color in the floors, you can use linoleum effectively and inexpensively. Send for "Armstrong’s Linoleum Floors," an 8½ x 11-inch handbook of plates and specifications, to see the range of colorings and designs from which you may choose.

Armstrong Cork Company  Linoleum Division  Lancaster, Pennsylvania
The Sherman, Texas, High School is a beautiful structure in a picturesque setting and graphically emphasizes the adaptability and pleasing appearance of Acme Brick for the modern school.

The Architects' ideal has been accomplished with Autumn Leaf "Rugg" texture shadings from our Bennetts, Texas, plant in harmony with the charming setting of majestic trees.

The six big Acme plants are so located as to make possible the production of a most unusual range of colors of weather-proof quality to render any color scheme.

A visit to our display rooms undoubtedly will prove both pleasant and profitable.

ACME BRICK COMPANY
General Offices, Fort Worth, Texas

ACME BRICK

Offices and Display Rooms:
Amarillo, Texas
Beaumont, Texas
Dallas, Texas
Fort Worth, Texas
Houston, Texas
Little Rock, Arkansas
Memphis, Tennessee
New Orleans, Louisiana
Oklahoma City, Oklahoma
Shreveport, Louisiana
San Antonio, Texas
Tulsa, Oklahoma
Waco, Texas
Wichita Falls, Texas

Plants (Owned and Operated)

Annual Capacity Over 100 Million Face Brick
Appalachian Marble in Des Moines

Appalachian Tennessee Marble is used for interiors, such as that of the Liberty Building, of Des Moines, Iowa, not alone because of its permanency, but because it can be obtained in a wide variety of colors.

With Appalachian marble, it is as easy for the architect to exactly carry out his interior marble color scheme as it is for an artist to select from his palette the colors for a picture.

Appalachian Tennessee marble is shipped at commodity rates from Knoxville and is reason-

able in cost because its huge production is obtained by time and labor saving quarrying and milling methods, and the utilization of all waste. The result is that the many colors of Appalachian marble are used in Iowa and all other states, in Canada, in Europe and in South America.

Architects are invited to make use of the Appalachian corps of experienced interior marble engineers. Plans and specifications sent for accurate cost estimate entail, of course, not the slightest obligation, and receive prompt attention.

APPALACHIAN MARBLE COMPANY
KNOXVILLE - Producers exclusively of Sincere Marble TENNESSEE
Pink Georgia Marble being distinctly different, is impressive with its warmth and dignity. The exterior and statues are of this material. Hardness, durability, and lack of absorption are outstanding characteristics of Georgia Marble.

THE GEORGIA MARBLE COMPANY
TATE, GEORGIA

NEW YORK
1328 Broadway

ATLANTA
804 Bona Allen Bldg.

CHICAGO
456 Monadnock Bldg.
Build with Indiana Limestone
and Avoid Future Expense

ARCHITECTS and builders who specify Indiana Limestone at the time when their plans are first being drawn, are safeguarding themselves against later disappointments which arise from the use of substitute products. Inferior materials eventually prove unsatisfactory and building owners find it advisable to remodel, which necessitates considerable expense.

The Terre Haute Trust Company is one of the many other organizations throughout the country that has recently replaced an inferior material in their building with Indiana Limestone, thereby greatly improving the appearance of the structure, and assuring themselves of lasting satisfaction. Indiana Limestone is practically immune to the action of frost, moisture, and other destructive elements, and is permanently beautiful and sound.

The latest addition to the Indiana Limestone Library, a booklet showing some of this country's finest Indiana Limestone school and college buildings, will be sent free upon request. Address, Indiana Limestone Quarrymen's Ass'n., Box 766, Bedford, Indiana

Build The Nation Securely With

INDIANA LIMESTONE

The Nation's Building Stone
GRANITE stands supreme among building stone in the effects produced by polishing. Because of its unique mineral structure, the polishing brings out its perfection of color and texture, and produces a most interesting contrast with hammered work.

NATIONAL BUILDING GRANITE QUARRIES ASS'N.
31 STATE STREET, BOSTON, MASS.
H. H. SHERMAN, Secy.

On Request a complete folio of these Granite Studies will be reserved for you.
TWO years ago Carney was specified and used for laying up the brick, tile and terra cotta in the first great section of the Wrigley Building, Chicago.

When making the openings in the old section for joining the new North Section recently completed, it was found the Carney mortar had so hardened and the bond was so strong it was necessary to crush the brick.

Such a convincing and striking proof of the strength and quality of Carney naturally induced the builders of the new North Section to specify and use it again in that structure.

So the entire Wrigley Building stands completed today a lasting monument to the strength, durability and economy of Carney.

Carney is the perfected cement for brick and tile mortar.

The Carney Company
Cement Makers Since 1883

Mankato, Minn. Mills at Mankato, Carney, Minn.

District Sales Offices: Leader-News Building, Cleveland; Chamber of Commerce Building, Chicago; Omaha National Bank Bldg., Omaha; Syndicate Trust Building, St. Louis; Book Building, Detroit; Builders' Exchange, Minneapolis.

Specifications: 1 part Carney to 4 parts sand.

Wrigley Building, Chicago, Ill.
Architects: Graham, Anderson, Probst & White, Chicago, Ill.
Contractor: Lanquist & Hidley Co., Chicago, Ill.
Permanent roads are a good investment—not an expense

Road Building Far Behind the Automobile

Millions now recognize the automobile as a necessity. It is no longer a luxury for the few. Sixty per cent of its use is for business.

Because of this the modern paved highway has become an economic necessity.

Yet although the mileage of Concrete Roads and Streets has been steadily increasing, our highway system today lags far behind the automobile. The great majority of our highways are as out of date as the single-track, narrow gauge railway of fifty years ago.

Such a condition not only seriously handicaps the progress of the automobile as a comfortable, profitable means of transportation, but also holds back commercial, industrial and agricultural advancement in practically every section of the country. It is costing taxpayers millions of dollars annually.

Highway building should be continued and enlarged upon.

Your highway authorities are ready to carry on their share of this great public work. But they must have your support. Tell them you are ready to invest in more and wider Concrete Highways now.

PORTLAND CEMENT ASSOCIATION
A National Organization to Improve and Extend the Uses of Concrete

Atlanta
Birmingham
Boston
Charlotte, N.C.
Chicago
Dallas
Denver
Des Moines
Detroit
Indianapolis
Jacksonville
Kansas City
Los Angeles
Memphis
Minneapolis
New Orleans
New York
Oklahoma City
Pittsburgh
Portland, Oreg.
Salt Lake City
San Francisco
Seattle
St. Louis
Vancouver, B. C.
Washington, D.C.
BRIXMENT
for Perfect Mortar

Strength, durability, economy

The invariable strength of BRIXMENT mortar insures a joint as strong as the brick itself. Resists moisture, will not scale, pop or otherwise disintegrate. Retains mortar colors permanently without impairment. No lime, no slaking. Can be used immediately after mixing (1 part BRIXMENT, 3 parts sand). Because of its inherent oily plasticity, BRIXMENT mortar can be laid with greater ease and economy. Further details and list of BRIXMENT buildings sent on request.

COLUMBIAN MUTUAL LIFE INSURANCE
BUILDING, MEMPHIS, TENNESSEE.
BRIXMENT mortar used on all brick and hollow tile. Boyer & Baum, St. Louis, Architects; Keely Bros. Contracting Co., St. Louis, Contractors; B. Lyons, Memphis, Tennessee, Masonry Contractor.

LOUISVILLE CEMENT CO., Incorporated
SPEED BLDG., LOUISVILLE, KENTUCKY
FROM Tivoli, in the Sabine Mountains, Earl Horter sends an interesting drawing of the crumbling remains of ancient Roman temples.

Here is a drawing which will appeal to everyone who knows the charm of penciling. Studying the technique, analyzing the character of the drawing, it is not difficult to see why Earl Horter, even in Europe, invariably uses the Dixon's Eldorado Pencil.

SAMPLE OFFER—Write for full-length free sample of "the master drawing pencil" and of Dixon's "Best" Colored Pencils. In their field, the "Best" Colored Pencils hold the same position of supremacy as Dixon's Eldorado.

JOSEPH DIXON CRUCIBLE COMPANY
Pencil Dept., 224-J, Jersey City, N. J.
Canadian Distributors, A. R. MacDougall & Co., Ltd., Toronto
Their use in a monumental public building of this character, where both the utilitarian and the artistic must be considered, is evidence that Sargent Hardware conform to the high standard set by the architect.

It is another addition to the long list of notable structures in which the products of the Sargent factories are used.

SARGENT & COMPANY
NEW HAVEN, CONN.

NEW YORK, 94 Centre Street  CHICAGO, 221 W. Randolph Street

"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.
When you design their  
"little house o' dreams"  
— let not the last be least

Once upon a time not so very long ago, Jack and Mrs. Jack planned a cozy house high upon a hill—the kind we all hope to have some sunny day.

They talked things over well—joyously discussed their future home into the wee sma' hours. One day they proudly viewed the finished plans. They were good plans for a good home—what one expects and gets from a good architect.

And so, the work began. Day by day the house came nearer and nearer. At last they stood on the hill and viewed their "little house o' dreams"—created.

They had dug deep in the ground and deep in their pockets for a good foundation. They had raised an extra loan to raise a good roof. They had hotly insisted on having a good heating plant. And plumbing? "Of course we want good plumbing" was their answer.

And then one day, they came to the last thing on the list, and being last they thought it least—the hardware. They thought "we'll save on the hardware—it's not so important." To the admonitions of their architect they answered "No". To the experience of their contractor they lightly snapped a finger.

Now listen closely that you may know what happens when the last is made least—when good buildings fail to get good hardware.

The doors were hung with two light hinges. They deserved three sturdy good ones. After awhile, the doors began to sag and squeak and stick—a daily irritation.

The locks—they looked about the same as good hardware. Poor locks often do—outside. But later their insides told a different story. They simply didn't work without a fuss. The key would stick. The knobs came loose and horror of horrors, the bright brass passed away. Rust and worn spots took its place.

The windows—what difference does their hardware make? Ask Jack and wife. They can tell you much about the ill-temper of cheap pulleys—their flat refusal to raise and lower windows quietly, easily and obediently. And makeshift window lifts that tarnish; fasteners, that with a struggle, only partly fasten.

And all through the house you will find it the same.

Those lovely casement windows that stick—the tall and gracious French doors that sag—the cabinet doors that keep forever slowly opening—all so beautifully designed, yet a daily disappointment and aggravation because of hardware on which Jack and wife decided "to save a bit."

To every sad story, there is a happy moral which you have no doubt guessed—which Jack and Mrs. Jack could now recite so well.

It is—"Good Buildings deserve Good Hardware—Corbin". True—isn't it? So obviously true that we wonder why well meaning Jacks and wives fail to realize it until after they have finished building.

Hardware that works willingly, doors that smoothly swing but never sing, locks that say "shut" and stay shut, windows that gladly rise on any occasion.

Yes, good hardware—Corbin—serves silently and satisfactorily as do well trained servants.

When you come to the last, let it not be least in their "house o' dreams". If it is to be a good building, it deserves good hardware—Corbin—nothing less.

Our interesting booklet "Good Buildings Deserve Good Hardware" should be read by every client who is building or thinking of it.
When the Door Warps

One of the great difficulties of self-releasing panic devices of the older types having vertical rods, lay in the top and bottom latches refusing to operate when the doors warped or shrank.

In the new model Von Duprin latches this difficulty is entirely overcome by the patented ball compensating device shown in the illustration.

This simple device permits the distortion of the vertical rods out of the plane of the mechanism case without interfering in the slightest with the positive, easy action of the device. It is one of the important improvements which make Von Duprin latches reliable at all times, even under panic conditions.

This is the seventh of a series of announcements showing recent improvements in Von Duprin devices.

Von Duprin Self-Releasing Fire Exit Latches are approved by the National Board of Fire Underwriters, as well as by numerous other approval bodies.

VONNEGUTH HARDWARE CO.
Indianapolis, Indiana
Manufacturers

Von Duprin devices are made better than is necessary for every day service; they are made to work perfectly under emergency demands—to save lives!
THE PREMIER ARCHITECTURAL NEWSPAPER
with the largest SALE in the British Isles among ARCHITECTS IS

"THE BUILDER"
A JOURNAL FOR THE ARCHITECT and CONSTRUCTOR

Every Friday... Price 9d.

Established 1842

First in News
Finest in Illustrations
Large double and single-page inset plates

SPECIAL OXFORD NUMBER
Numerous views and sketches of Oxford Mediaval Oxford with key---Large double page plate by the late H. W. Brewer by post 1/2

LIVERPOOL CATHEDRAL NUMBER
4 loose double page inset plates including a special drawing by T. Raffles Davison. Liverpool Cathedral—view of the completed scheme. By post 1/2.

ROYAL ACADEMY NUMBER
40 pages of plates—Architectural works exhibited at the Royal Academy, 1924. By post 1/3.

"THE BUILDER" will be sent you weekly for 12 months for £2/5/-


Wren's City Churches A series of Pencil illustrations specially drawn by T. Raffles Davison Hon. A. R. I. B. A. 2/11d.

"Old London Illustrated"
WITH TRANSPARENT KEY PLATES AND INDEX
Post free 8/-


The drawings are printed on one side of the paper only.

A full list of Books for the Profession and specimen copy of "THE BUILDER" sent post free on request.

THE BUILDER, LTD.
4 Catherine Street, Aldwych
London, England

THE ARCHITECTURAL FORUM

CLIP THIS FOR YOUR SECRETARY TO FILE

THE WALL OF CHINA

Once MADE BY THE MILE
GENERATIONS of toiling coolies piled stone into the great Wall of China—legendary marvel of a former age. The wall of Mount-Partition—marvel of the present business age—has equaled the length of the Wall of China in 32 years—1800 miles! Its perfected adaptability to all business allows the architect to specify a standard by which local builders or carpenters can duplicate our famous New York service.

Inquire concerning our specialized ability to serve you and send for our list of clients.

MOUNT & ROBERTSON, Inc.
Established 1892
41 Beaver Street, New York

"The HIGGINS Triangle"

Drawing Board Paste, Drawing Ink, Photo Mounter

Used by Most Architects for over 40 Years

CHAS. M. HIGGINS & CO.
971 Ninth Street
Brooklyn, N.Y.

MOUNT & ROBERTSON, Inc.
Established 1892
41 Beaver Street, New York
Meets All Architectural Requirements

This Hollow Steel Standard Unit Partition at Wood Cost.

At last! A hollow-steel, interchangeable partition of standard units!
A well balanced design so skilfully followed that it is suitable for use in the finest banks, offices and schools as well as shops. A rich, warm color—Hauserman Brown—that tones in, and blends with all surroundings.

Hauserman Standardized Partitions offer your clients many advantages. Adaptable to any height, width or condition. Any desired combination of doors, wickets, grills or ventilators. Easy to re-arrange or add to, at any time with 99% salvage. Strong, rigid, fire-resisting.

Quick shipment from stock. Obtainable at wood cost. Let us plan with you.

THE E. F. HAUSERMAN COMPANY
1733 East 22nd Street Cleveland, Ohio

BRANCH OFFICES
New York Boston Pittsburgh Detroit Chicago

H AUSERMAN P ARTITIONS
Hollow Steel-Standard Units at Cost of Wood
Dignity Befitting Any Office

Circle A Partitions (Sectional and Removable) create a satisfying impression of stability and permanence. Not a screw-head or a bit of wiring shows. Joints are accurately machined. Nothing indicates that the structure can be taken down in a few hours’ time.

Circle A Partitions offer the office a beauty of finish and tone that plaster can never possess. You have your choice of mahogany, oak, birch, or pine from stock; and to order, gum or walnut. The finish can be made to match other woodwork or furniture.

Below is shown an installation of Circle A Partitions, Cabinet Design, in solid mahogany, in the American Furniture Mart, Chicago. The members of the furniture trade and the manufacturers who use this building are critical judges of cabinet work. Send for complete catalogue showing details, plans, construction, etc., of Circle A Partitions, mailing to us the coupon below.

CIRCLE A PRODUCTS CORPORATION
A Subsidiary of The Alexander Lumber Co.
Makers of Circle A Portable Houses and Churches
Portable Bleachers, etc.
714 Neil Street, Champaign, Illinois

Tear off this coupon and send for complete illustrated catalogue, file size, showing details of construction, floor plans, etc.

Circle A Partitions
Sectional and Removable
View showing two motor-driven Jennings Hytor Vacuum Pumps, and two motor-driven Jennings Hytor Condensation Pumps in the basement of the American Surety Building, 100 Broadway, New York

“Perfectly satisfied . . . . would install Hytors again”

So says Mr. Ellingwood, Chief Engineer of the American Surety Company Building, New York City, regarding the Jennings Hytor Vacuum Heating Pumps installed in the building. These pumps operate continuously twelve hours a day, and, in the three years they have been in use, have given no trouble.

Unfailing performance such as this is typical of the Jennings Hytor. Design and construction are in keeping with the best modern developments. All parts are standardized and made to limit gauges on an interchangeable basis. The unique manner by which the steam condensation is handled separately from the air, vapor and non-condensible gases accounts fully for a 50% saving in power, with a proportionate reduction in the cost of electric current.

For complete information, get in touch with the nearest Nash Engineer.

NASH ENGINEERING COMPANY

So, Norwalk, Connecticut

Branch Sales Offices: Atlanta, Boston, Buffalo, Chicago, Cleveland, Dallas, Denver, Detroit, Houston, Indianapolis, Los Angeles, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Richmond, St. Louis, San Francisco, Washington. In Canada—Montreal, Toronto and Vancouver

Jennings Hytor

RETURN LINE AND AIR LINE VACUUM PUMPS  CONDENSATION AND  CIRCULATING PUMPS
It is only natural that the fittings for such a building as the Centennial Memorial Building, erected at Springfield, Illinois, to commemorate the one hundredth anniversary of the admission of that state into the union, be chosen to express fittingly the character of the building.

Kaestner & Hecht Elevators were selected to furnish the vertical transportation, because the smooth, silent operation of K&H Variable-Voltage Control and the nationally recognized leadership of K&H engineering practice assured that they would reflect in their service the quiet dignity that characterizes the architecture.

Kaestner & Hecht Co. • Founded 1863 • Chicago

Ask Your Architect
CONTENTS for DECEMBER 1924

PLATE ILLUSTRATIONS

THE ROOSEVELT HOTEL, NEW YORK
Architect: George B. Post & Sons
Plate: 73-76

CHAMBER OF COMMERCE BUILDING, NEWARK
Architect: Guilbert & Betelle
Plate: 77, 78

HOUSE OF DR. HAROLD L. SPRINGER, ROCKLAND, DEL.
Architect: Brown & Whiteside
Plate: 79, 80

THE FORUM STUDIES OF EUROPEAN PRECEDENTS
(Plates 9-16)

LETTERPRESS

COVER DESIGN: DETAIL FROM INDEPENDENCE HALL
Author: From a Drawing by Louis C. Rosenberg

THE EDITOR'S FORUM
Author: 41

EXTERIOR OF ROOSEVELT HOTEL, NEW YORK
Author: From an Etching by Ralph Shepard

THE NEW ARROWHEAD INN
Author: Matlack Price; Dwight James Baum, Architect
Plate: 269

THE ROOSEVELT HOTEL, NEW YORK
Author: George B. Post & Sons, Architects
Plate: 277

HOUSE OF J. G. KELLOGG, ESQ., WINNETKA, ILL.
Author: Chatten & Hammond, Architects
Plate: 285

"LITTLE ORCHARD," GREENWICH, CONN.
Author: Phelps Barnum, Architect
Plate: 289

A RENAISSANCE GARDEN AT SAN DOMENICO, FLORENCE
Author: Roger Wearne Ramsdell and Harold Donaldson Eberlein
Plate: 293

THE DESIGN OF A TRUSS WITH PARALLEL CHORDS
Author: Charles L. Shedd, C.E.
Plate: 301

INTERIOR DETAILS FROM HOTEL GOUTHIERE, PARIS...
Author: 307

PLATE DESCRIPTION
Author: 311

EDITORIAL COMMENT
Author: 312

Opening of American Wing at Metropolitan Museum

PARKER MORSE HOOPER, Editor
Plasticity and Permanency

Like clay in the hands of the expert modeler, like a precious metal wrought by a skilled smith, so does stucco, because of its plasticity lend itself to the will of the architect. Shadow and sunlight, richness and variety of texture, each contributes to the feeling of a wall done in stucco. Plasticity provides for the introduction of the third dimension so lacking in flat walls of brick, stone and frame.

In utilizing stucco, however, the important points to be considered are the strength and durability which accompany the factor of plasticity. Finely ground to obtain flexibility, will the stucco set up hard and dense? Is it waterproof, thus doing away with dampness and erosion? These are points on which the architect must satisfy himself when specifying.

Every day, more and more, are architects finding that Bishopric Stucco meets each and every one of the above requirements, because Bishopric is built to a standard from only the finest of raw materials the domestic and foreign markets afford.

*Bishopric Is Sold by Dealers Everywhere

The BISHOPRIC MANUFACTURING Co.
103 ESTE AV., CINCINNATI, OHIO
NEW YORK, COLUMBUS, CINCINNATI, OTTAWA, CANADA

BISHOPRIC MFG Co. OF CALIFORNIA
LOS ANGELES

BISHOPRIC
Stucco Over Bishopric Base
"A Complete Wall Unit for all Time and Clime"
THE growing interest in the furniture and decorative art of Old Spain is a natural result of the trend in America toward simplicity and freedom in home surroundings. We are coming to share the Spaniard's appreciation of the restfulness of plain wall surfaces and their value as a background for fabrics and furniture.

Early Spanish furniture (Mudejar), the work of Moorish craftsmen, is a fascinating blending of the richness of Renaissance Italy with the simplicity of the Arab. The frank directness of its construction and ornament gives it an extraordinary vitality and a decorative quality that is brilliant yet essentially simple in character.

Fidelity in design and the old-time hand processes of the Kensington craftsmen retain in Kensington reproductions the character and the decorative quality that are the charm of the antique.

Architects interested in completing the interiors they design with furnishings harmonious in both character and quality are cordially invited to avail themselves of the service of the Kensington Showrooms and staff.

Illustrated Booklet F sent on request

KENSINGTON MFG. COMPANY
MANUFACTURERS AND IMPORTERS
DECORATIVE FURNITURE & ART OBJECTS
NEW YORK
NEW SHOWROOMS, 41 WEST 45th STREET, 6th FLOOR
KENT-COSTIKYAN
FOUNDED 1886

485 FIFTH AVENUE—SIXTH FLOOR
Opposite Public Library
NEW YORK

IMPORTERS OF ANTIQUE AND MODERN RUGS
FROM PERSIA, INDIA AND THE FAR EAST

SMALL RUGS AND STRIPS IN GREAT VARIETY

In the selection of choice Oriental rugs we advise the
co-operation of a decorator or architect

Church Furniture

ALTARS · PULPITS · LECTERNs
BAPTISMAL FONTS
CHOIR STALLS · PRIE-DIEUX
ALTAR RAILINGS
ORGAN SCREENS · ROOD BEAMS
READING DESKS
MEMORIALS IN CARVED WOOD
PEWS · CHAIRS

American Seating Company

General Offices
NEW YORK  1094 Lytton Building
CHICAGO  79 Canal Street

Memorial Pulpit, Grace Cathedral, Topeka, Kansas
A Product of our Wood Carving Studios
A Small Business Building that Reflects Architectural Skill

Beauty and harmony of architectural treatment are clearly revealed in the administrative building of the Restrick Lumber Company, inside as well as out. The floors of Gold-Seal Treadlite Tile, for instance, were selected for their artistic appearance as well as for their practical qualities.

Artistic, appropriate floors are a specialty of the Bonded Floors Company, and there’s a particular Bonded Floor for office, salesroom, store, shop, club, church or private residence. For one of these interiors, the right floor and pattern may be one of Gold-Seal Treadlite Tile or Gold-Seal Rubber Tile. For another, Gold-Seal Battleship Linoleum—a sturdy, durable floor which satisfies every practical demand, including low cost.

We will gladly send complete information on any or all types of Bonded Floors; the Surety Bond; and specifications covering the installation of resilient floors.

Backed by a Bond
Every floor laid according to Bonded Floors specifications is backed by a Surety Bond issued by the U. S. Fidelity and Guaranty Company. The bond insures freedom from repair expense due to defects in materials or workmanship.

Bonded Floors Company, Inc
Division of Congoleum-Nairn Inc.
Manufacturers • Engineers • Contractors
Main Office: 1421 Chestnut Street, Philadelphia, Pa.
New York • Boston • Philadelphia • Cleveland
Detroit • Chicago • Kansas City
San Francisco • Los Angeles
(Distributors in other principal cities)
An interesting Hepplewhite set consisting of two arm chairs as illustrated above and four side chairs.

One fascination of the antique is the speculation which it arouses as to its origin and history. Some of our pieces have a well-defined past. Concerning others, however, very little is known. In every instance, however, we vouch for their authenticity.

521 Madison Avenue
Between 53rd and 54th Streets
New York
The Genre Designs of an Old French Needlepoint are reproduced in this Tapestry Covering

INTERWOVEN with homely humor and acute observation, replete with popular anecdote from edge to edge, the genre tapestries of the 17th and 18th centuries have a variety of interest that makes them unique not only among tapestries but among all decorative textiles.

This fine modern tapestry recreates the same abundant and interesting forms which patterned a superb antique French museum piece. The original was done not on a tapestry loom, but in the still older fashion of needlepoint. The modern replica shows the tiny, charming figures of the original, mountebanks of old French countrysides with their dancing bear and fortune-telling bird. Flying insects, peacocks in pursuit, richly filling every space, are all framed and held into the composition by a winding ribbon suggestive of a Chinese cloud-band.

Like the original, it records in soft wools and reds and yellows of primitive freshness the rise of democratic taste. Far from mediaeval themes of chivalry, from the sumptuous classicism of the Renaissance, it faithfully follows the example of the peasant scenes later popularized by Teniers and Goya.

While this tapestry contains all the merits and charm of the original, modern developments in textile weaving have made it quite available for today's interiors. Other tapestries representing the genre traditions of France, of Flanders, and of Spain are in the Schumacher collection, while the whole range of tapestries, reproducing the best of the great periods, is unusually comprehensive.

Dealers and decorators will find in the Schumacher establishment a wide variety of fabrics suitable to all types of interiors.

F. Schumacher & Co., Importers, Manufacturers, Distributors to the trade only of Decorative Drapery and Upholstery Fabrics, 60 West 40th Street, New York. Offices also in Boston, and Chicago, and Philadelphia.
The New Model “C”
Fain Fold-Away
Breakfast Room

The Junior member of the family of Fain Fold-Away Units has, by its compactness, comfort and adaptability, won the interest of architects and builders the country over. It sets in a standard four-inch stud partition.

Write for Illustrated Folder and Details

FAIN MANUFACTURING CO.
313 National Bank of Commerce Building
NORFOLK, VIRGINIA

The entire ideas of the Fain FOLD-AWAY Dining and Breakfast Rooms are protected by U.S. Patent Laws.

Agents Wanted in Several Cities
In a Spanish Castle in Cleveland Heights

The MURPHY IN-A-DOR BED

TWO hundred feet above Lake Erie, Cleveland has an apartment hotel of which she is justly proud. The Alcazar, a Spanish Castle in realization as well as in translation, has a total of 300 rooms [all outside] which form a nucleus of approximately one hundred suites.

225 Murphy In-A-Dor Beds give such flexibility to the entire floor scheme that it may be arranged to suit the guests in suites of a single room and bath up to those of five or six rooms.

Over 200 of the Murphy Beds in the Alcazar are of the twin type. By day they are out of sight and out of the way in their bed closets. At night they swing easily in position, turning the living room into a sleeping chamber. Murphy Beds are the only standard, full size beds that are effectively concealed by a standard 3-ft. door.

The very fact that such hotels as the Alcazar are planned and built to include the Murphy Bed testifies to its reputation as a bed that brings comfort to the guest who sleeps upon it, years of sturdy service to the owner who installs it and the gratitude of both to the architect who, by recommending it, made it possible for them to enjoy the convenience of an extra bedroom without extra building cost or extra household care.

THE MURPHY DOOR BED COMPANY

Offices and Display Rooms in all Principal Cities


Detail of the loggia where it leads from the patio into the hexagon-shaped lobby.

THERE IS ONLY ONE IN-A-DOR BED—"THE MURPHY"
A BANKERS' BOARD ROOM
with well finished
Mahogany Pannelling and Furniture
Harmonious and Dignified

BE SURE IT IS GENUINE MAHOGANY

We welcome every opportunity to confer with you on all matters relating to this subject.

MAHOGANY ASSOCIATION, INC., 1133 Broadway, New York

A NATIONAL ORGANIZATION of MAHOGANY PRODUCERS
IN this world mart of commerce, the Architect selected Woodwork by Matthews Brothers to carry out his conception of the service of this institution and the grandeur of a great nation expressed in his design.

Since eighteen hundred fifty-seven, architects have universally selected Woodwork by Matthews Brothers for interiors in which dignity and beauty were the first consideration.

Matthews Brothers Manufacturing Company, Inc., Milwaukee, Wisconsin

WOODWORK by MATTHEWS BROTHERS
FACILITIES for healthful, invigorating indoor recreation are essential to the successful operation of Hotels, Apartment Buildings, etc. They make the property more attractive to guests and tenants. They augment rental values. They enhance the income derived from the total investment.

As makers of the world’s finest equipment for billiards and bowling, we are in a position to render valuable assistance in planning billiard rooms and bowling alleys for such enterprises. A letter to our home office will enlist our fullest cooperation without in any way obligating architect or owner.

The BRUNSWICK-BALKE-COLLENDER Company
Branch houses in the principal cities in the United States and Canada
623-653 South Wabash Avenue, CHICAGO

billiards
a gentleman’s game
WALLPAPER effects removed from the conventional may be obtained readily without sacrifice of taste or beauty. The example given here is one of the most ambitious and pleasing of the newer creations. Modern in every sense of the word, it gives to the dining room the lovely freshness of a hanging garden.

Equally beautiful wallpapers of authentic pattern for every historical period or decorative style may be obtained.

Write to our Interior Decoration Service Bureau for practical co-operation in supplying architects samples of wallpaper and other aids to the solution of specific problems in the decoration of walls.

Any store that displays this sign is an associate member of the Wallpaper Guild.

WALLPAPER
MANUFACTURERS ASSOCIATION of the United States 461 EIGHTH AVE., N.Y.C.
"The Marquis Was Speechless"

"—Nothing more magnificent and more refined at once had ever met his gaze. On the four principal panels were the arms of the Du Barrys, with the famous war-cry, 'Boute en avant.'

"Upon each of the side-panels was a basket of roses on which two doves were tenderly pecking at each other, the whole varnished with the Martin Varnish, the secret of which is lost now.

"The carriage cost fifty-six thousand francs.

"Has the king seen the superb gift, Madame la Comtesse?' asked the Marquis de Chauvelin.

"Not yet, but I am sure of one thing.'

"Of what are you sure? Let us hear.'

"That he will be charmed with it.'"

Extract from "MONSIEUR De CHAUVELIN'S WILL" by Alexander Dumas, (Handy Library Edition), Copyright 1897.

Martin's
100% Pure Varnish

is today manufactured of Pure Gums, Pure Oil, and Pure Turpentine—No Rosin—No Benzine. Because of these quality ingredients Martin's 100% Pure Varnish gives a finish that cannot be excelled.

We make no secret about the ingredients used in the manufacture of Martin's 100% Pure Varnish. Because of this fact we are putting the formula on every package so that you and your customers will know what you are buying. This formula is your protection—a guarantee of a quality finish—economy and durability.

FRENCH'S PEERLESS MORTAR COLORS

Write us for Descriptive Booklet and Color Card, the Original PULP Mortar Colors

Samuel H. French & Company
PHILADELPHIA

Established 1844 Incorporated 1920
Each Devoe Varnish is a Specialist!

No single varnish can suit all purposes equally well, no more than the same medicine can cure all ills. That is why Devoe has always sponsored "A particular varnish for a particular purpose."

Behind this plan is a plain common sense idea. Each Devoe Varnish is specifically compounded to meet the exact requirements of its particular use. This eliminates the sacrifice of one quality for the sake of another.

In making Devoe Varnishes there is no attempt to achieve quick drying at the expense of durability; or elasticity at the cost of clarity. Each varnish is made to do a specific thing as thoroughly and well as that thing can be done.

And each Devoe Varnish does its allotted task as beautifully and as thoroughly as 170 years' experience can help to do it.
The Test of Painting That Comes with Winter's Snows

With the coming of winter comes the test of last summer's painting. The bright colors of leaves and flowers that beautified the property are gone. The house stands by itself against gray skies, amongst the bare branches of trees. When snow covers the lawns and sets a standard of purest white, will the paint on the homes that you designed look as well as when you saw them last in the summer or early fall?

Homes painted with Eagle White Lead will be just as handsome, for the beauty is painted onto the house itself. Though boards creak with frost and snow and icy rain beat upon the paint film, the houses painted with Eagle White Lead will stand the test of winter.

For the qualities of durability and long continued whiteness under severest conditions were developed in Eagle White Lead by the Old Dutch Process of slow sure corrosion during the ninety days that the White Lead was forming in the tan bark beds.

Should a process be discovered that is a better process for the production of white lead and not merely a cheaper one, The Eagle-Picher Lead Company will consider its adoption. Until that time, Eagle will continue to be Pure Old Dutch Process White Lead in Oil, as it has been since 1843.

Residence of Dr. L. E. Leavenworth, Canton, Ohio
Combating Corrosive Gases, Heat, Cold, Wind and Water

The almost constant stream of corrosive and sulphurous gases from the locomotives plying beneath immeasurably speeds the corroding action of wind and water attacking the railway viaduct.

Jacobson Brothers, the contractors, of Duluth selected Sublimed Blue Lead in Oil to meet this most severe test of a rust-proofing paint on the McDougal Terminal Viaduct. The structural steel in the building is also protected with Sublimed Blue Lead in Oil for the life of the building.

Sublimed Blue Lead in Oil will not harden in the container.

The paint, properly mixed, works so easily and smoothly under the brush that a painter can cover a greater area in a day and still produce a paint film that is free from breaks, runs, or alligatoring. The paint film is also virtually insensible to changes in temperature.

One hundred pounds of Sublimed Blue Lead in Oil will cover 5146 square feet of iron or steel. This is equivalent to a surface 1 foot wide and nearly a mile long. It is practically double the performance of the pigments now most used for rust inhibitive purposes.

The durability of Sublimed Blue Lead in Oil as a long time protector of metal surfaces has been proved both in tests and in the field.

Send for your copy of "Fighting Rust with Sublimed Blue Lead."

The EAGLE-PICHER LEAD COMPANY

EAGLE Sublimed Blue Lead in Oil

CINCINNATI CLEVELAND PITTSBURGH PHILADELPHIA NEW YORK MINNEAPOLIS
BUFFALO DETROIT BALTIMORE NEW ORLEANS KANSAS CITY ST. LOUIS JOPLIN

Plants:
CINCINNATI - NEWARK - GALENA, KAS. - HENRYETTA, OKLA. - Picher, OKLA.
EAST ST. LOUIS, ILL. - CHICAGO - ARGO, ILL. - JOPLIN, MO. - HILLSBORO, ILL. (2 Plants)
12 PFAUDLER CHUTES
IN ONE INSTALLATION

at the

HUDSON COUNTY HOSPITAL
FOR THE INSANE
SECAUCUS, N. J.

We are now building 12 Pfaudler Glass Lined Chutes for the Hudson County Hospital, New Jersey. The chutes are as follows:

Ten—27' chutes, for Buildings 4-A, 4-C, 4-E, 5-A, 5-C, 5-E, 5-F, 7-A, 7-C, and 7-E.

Two—16' chutes, for Buildings 4-F and 7-F.

This is the largest single laundry chute installation ever made in the hospital field, to our knowledge. Further, it indicates, as have many of our other recent installations, that the two-story hospital can use a laundry chute quite as effectively as a taller building.

THE PFAUDLER CO.
Rochester, N. Y.
Makers of the Glass Lined Steel Laundry Chute

BRANCHES IN MAIN CENTERS

GLASS LINED STEEL LAUNDRY CHUTE

AN ALL-PURPOSE VARNISH THAT SIMPLIFIES FINISHING

How an improved method of fusing oils and gums makes Master Varnish ideal for all uses—inside and out

WITH the overwhelming demand for new buildings of all kinds and the consequent shortage of labor, time-saving methods are more urgent than ever before.

Specify Master Varnish wherever varnish is to be used. One crew of men, all with Master Varnish, can finish up any building in less time, and at less expense, than with one special varnish for this use and another for that.

Master Varnish is absolutely water, weather, and mar proof. It will stand every test that any other varnish will and many that other varnishes cannot stand.

Let us send you a sample sufficient to finish a table or chair on which you can make any test you want.

O'BRIEN VARNISH COMPANY
1229 W. WASHINGTON AVE.
SOUTH BEND, INDIANA

"Varnish and Paint Makers for Half a Century"

This design is the identification mark for genuine Ripolin Enamel. All Europe knows this famous trade mark. The secret process of making Ripolin was discovered in Holland thirty years ago. Since that time Ripolin has been used throughout the civilized world.
In the Roosevelt Hotel, the embodiment of public service, Filtex also renders service. Filtex, an unusual, transparent, pigment first coater, forms a smooth, impervious film that eliminates suction on porous surfaces. By holding out the finishing coats and preventing loss, it serves architects, painters and owners alike.
New York City Hall

restored from
time-faded drawings

Modern wonders of architecture overtop New York's City Hall on every side. Yet to this day architects regard this old building as unexcelled for perfect proportions and beautiful design.

It was built in 1803-12 at a cost of $500,000, an enormous expenditure in those early days of city finance. John McComb, Jr., the architect-builder, received but six dollars a day for his services. For this sum he developed a set of drawings which are considered today as excellent examples of artistic skill:

From these old drawings made by McComb, all but one of the historic interiors of City Hall, which had been altered by changing city authorities, have now been restored as nearly as possible to their original design.

The thoroughness with which this restoration work has been preserved and protected for future generations is shown by the treatment of the Governor's suite.

This suite is finished in a mellow cream enamel. Foundation coats of Dutch Boy white-lead and oil were followed by two coats of enamel. Each coat of paint was thoroughly sandpapered. The enamel was rubbed down with pumice stone and water.

The restoration and decoration of the Governor's suite, as well as the other interiors of New York's City Hall were executed by Grosvenor Atterbury, Architect, F. A. I. A., with the collaboration of his associate, John Almy Tompkins.

Plates of John McComb's original drawings sent free

In all of this restoration work, McComb's original drawings, wherever they existed, were painstakingly followed. We have been permitted to reproduce a few of these drawings in a Portfolio of Early American Architecture, which also contains accurate measured drawings of other noteworthy Colonial buildings. It will be sent free to any architect who writes for Portfolio No. 22.

The historical notes you have just read will not, however, appear in the Portfolio. So keep this page for reference after you receive your Portfolio.
Brasco *Indirect Screw Pressure* Gives Absolute Glass Safety

One of the most vital factors in store front construction is the provision for holding the glass *safe* against breakage.

The remarkable records that Brasco fronts have made in glass safety, by actual check up in cities and towns throughout the country, are due not only to the extra wide, supple and uniform grip on the glass but in large measure to the principle of *indirect screw pressure*.

Brasco differs from ordinary fronts in that no screw points directly toward the glass, and there never is danger, therefore, of the glass settling down on any screw.

This distinctive method of fastening removes all possibility of any holding strain being transmitted to the plate, because it is taken where it belongs—by the supporting members.

Vibration, shock or wind and storm pressure cannot possibly force the glass into contact with the screws to crack and ultimately smash the plate.

Brasco safety to glass is recognized universally by architects, owners and merchants. It has lowered insurance rates in many instances and is recommended and used broadly by insurance companies themselves.

This and many other advantages are explained in our catalog, gladly sent to any architect on request. Full size detail sheets and actual samples are also available. We are glad to assist.

Brasco Manufacturing Company
5031 South Wabash Ave., Chicago

Brasco Copper Store Fronts
When is a Store Front Most Economical?

Answer:—When it is a Zouri Safety Key-Set store front.

A Zouri window is set firmly, is stronger, offers more resistance to stress and strain and therefore lasts longer. Its initial cost prorated over its multiplied years of service proves Zouri to be a most economical investment.

Unbiased guarantee of quality is the inspection stamp of the Underwriters Laboratories appearing on all Zouri Safety Key-Set Sash and Bars. It means highest grade materials, finest craftsmanship, conscientious construction and consequent durability.

An attractive, well appointed Zouri Store Front “gets the people in.” It reflects the quality of the merchandise and progressiveness of the management.

Free—our big catalog illustrating types of windows and settings and constructive technical data, also illustrated book of valuable suggestions to retailers on methods of “Getting the People In”

Zouri

Safety Metal Store Fronts

prevent glass breakage during installation or from distortion after the glass is installed.

Murnane Self-Adjusting Setting Blocks bring the glass into firm and even contact with the full face of the rigid rabbet. Zouri Key-Set construction holds it there.

In Zouri sash the glass is held in place by indirect screw pressure—more certain and perfectly safe.

There’s a distributor near you who will give you full details without obligation. Write for his name.

FACTORY AND GENERAL OFFICES
1608 East End Avenue, Chicago Heights, Illinois
The Durable, Quiet, Comfortable Floors of Modern Public Buildings

The mistaken notion that a durable surface must be a hard surface is largely responsible for the uncomfortable, noisy, slippery, and often unsightly floors in many of the older public buildings.

That floors can be durable and at the same time comfortable, quiet, non-slippery and beautiful is exemplified in the increasing use of Armstrong's Cork Tile. Here is a flooring that totally disproves the idea that durability is synonymous with hardness. Yielding—almost soft—underfoot, it nevertheless stands up under hard service with little, if any appreciable wear. Its resilience protects it against abrasion. It does not crack, craze or "dust".

Armstrong's Cork Tile in public buildings means comfort underfoot for employees and visitors; security against slipping on level, ramp or stair; freedom from the distracting tramp and scuffle of feet; a distinctive and pleasing appearance; and durability that insures years of service.

Armstrong Cork & Insulation Co., 142 24th St., Pittsburgh, Pa.

**ARMSTRONG'S CORK TILE**
Ft. Worth's Leading Office Building

ASBESTONE Floored

In the Dan Waggoner Building, Ft. Worth, Texas, 90,000 square feet of ASBESTONE Flooring is giving perfect service. Fireproof—waterproof—hygienic. ASBESTONE is the ideal medium-priced flooring for offices, schools and other public buildings. It is very attractive in appearance, resilient to the tread, and lasts a lifetime. Although made of the very finest materials that can enter into a composition flooring, it is installed at a very moderate price.

In order to insure perfect workmanship, we install all ASBESTONE floors with our own force of experienced men. Estimates will be sent on receipt of blue prints and specifications, informing you exactly the cost of the completed floor, and the cost will be surprisingly low. No obligation.

Our new ASBESTONE Flooring Book graphically illustrates the beauty of color effects and border designs. Write us for it today.

FRANKLYN R. MULLER, Inc.
201 Madison Street, Waukegan, Illinois
How long will it stay smooth? That's the important thing to consider when selecting a factory flooring. A floor, no matter how durable, that isn't smooth after a few years' service does not justify its original cost—it's long life is valueless.

Smooth floors increase efficiency in trucking whether with men or with tractors by permitting the moving of heavier loads in less time, with less energy and without damage to trucking equipment or cargoes.

Bloxonend comes to the job in 8-ft. lengths with the small, tough blocks dovetailed end-wise onto baseboards.

Bloxonend is made of Southern Pine with the tough end grain up. That means durability. And along with durability, Bloxonend combines the smoothness of dressed and matched flooring. It is the only end grain flooring so designed that it must stay smooth.

Note that Bloxonend lays directly over concrete, new or old. The “built-up” 8-foot lengths are splined and nailed together—the nails being furnished positioned in countersunk bores ready for driving.

There is an installation of Bloxonend Flooring—in industrial plant, bakery, publishing plant, school, etc.—in practically every city of any size in the United States. If you are designing a building that will require durable floors of lasting smoothness, you should investigate Bloxonend. Write nearest office today for architectural specifications.

CARTER BLOXONEND FLOORING COMPANY
Kansas City, Missouri

NEW YORK
561 Fifth Avenue

CHICAGO
332 S. Michigan Ave.

BOSTON
109 Broad Exchange Bldg.

CLEVELAND
1100 Euclid Avenue

SAN FRANCISCO
907 Hobart Bldg.

DETROIT, MICH.
2520 1st Nat'l Bank Bldg.
Architects recognize the necessity of a waterproof brick mortar joint and the difficulty of securing it in freezing weather. Master Mix produces waterproof joints at freezing temperatures, and saves its cost by maintaining warm weather workability, eliminating a principle cause of delay in winter construction.

THE MASTER BUILDERS COMPANY
Cleveland, Ohio
One of Ninety-one

Among the many fine buildings in the Middle West covered with Ruberoid Built-up Roofs is the Joliet High School; F. F. Allen and D. H. Burnham & Co., architects.

The Joliet High School is one of ninety-one contracts, involving over 350,000 square feet of roof surface, carried out by the Olsson Roofing Co. of Aurora, Ill., during the past fifteen months—each being a Ruberoid Built-up job.

It is particularly significant that Ruberoid Built-ups have attained such success in the Middle West where severe winters often follow intensely hot summers. Ruberoid roofs do not crack or soften. Their ingredients—Ruberoid Cap-sheet, Ruberoid Solid-cement and Ruberoid Asphalt Felt—retain their weather proofing qualities for many years, in spite of climatic conditions.

Architects, builders and construction engineers throughout the world have found in Ruberoid Built-up Roofs the very qualities they most desire—unsurpassed ability to resist weather and wear combined with light weight and economy of construction.

Samples and specifications for various types of Ruberoid Built-up Roofs will be sent you on request.

The RUBEROID Co.
95 Madison Avenue, New York
Chicago
Boston

RU-BER-OID
Built-up Roofs
Every morning the Sun comes up on 10 thousand "Cementile" Roofs. How many of these have you specified?

Write for a Catalog

AMERICAN CEMENT TILE MANUFACTURING CO.
831 Oliver Bldg., Pittsburgh, Pa.

Plants: Wampum, Pa.—Lincoln, N. J.—Birmingham, Ala.
Offices: Pittsburgh, New York, Philadelphia, Atlanta, Birmingham

Specify CEMENTILE
The Roof of Everlasting
EXTEND your business by using sheet metal products that have an established reputation for durability and trustworthiness. This means economy to users, and a practical business aid to the building construction interests—architects, contractors, sheet metal workers, and metal lath manufacturers.

Black and Galvanized SHEETS

When Copper Steel is used, the Keystone is included in the brand.

Roofing Tin Plates

Made from Keystone Copper Steel; highest quality roofing terne plates produced in this country—grades up to 40 pounds coating. These Plates assure better roofs, and the utmost of lasting and satisfactory protection—fireproof, durable, and economical.

The destructive enemy of sheet metal is rust. It is a well established fact that an alloy of copper gives to Steel Sheets and Tin Plates the maximum of rust-resistance. Keystone Copper Steel is unequaled for roofing, siding, spouting, gutters, culverts, metal lath and similar uses. It assures roofs and sheet metal work that will withstand the ravages of fire, wear and weather. Shall we send proofs from actual service tests? We manufacture Steel Sheets and Tin Plates for all purposes and specially adapted to the requirements of architects and contractors: Black Sheets, Special Sheets, Apollo and Apollo-Keystone Galvanized Sheets, Corrugated Sheets, Formed Roofing and Siding Products, Roofing Tin Plates, Bright Tin Plate, Black Plate, Etc. Sold by leading metal merchants. Our products represent the highest standards of quality and utility. WritenarestSalesOfficeforquotations and “Testimony” booklet.

American Sheet and Tin Plate Company
General Offices: Frick Building, Pittsburgh, Pa.

DISTRICT SALES OFFICES:

Chicago Cincinnati Denver Detroit New Orleans New York Philadelphia Pittsburgh St. Louis

Export Representatives: United States Steel Products Company, New York City
Pacific Coast Representatives: United States Steel Products Company, San Francisco, Los Angeles, Portland, Seattle
A MAN who achieves a reputation for making a quality product is likely to be a user of quality products himself. Hence it's not surprising that Harry C. Stutz, the well-known builder of high-grade motor cars, selected IMPERIAL Roofing Tiles for his attractive new residence at Indianapolis, Indiana.

For generations to come, this roof will stand as a tribute to the good judgment of the builder. Neither sun nor wind nor rain nor snow will affect its permanency or coloring. Like all quality products, IMPERIAL Roofing Tiles cost a trifle more at first. But in the end they pay for themselves many times over.
A roof of rare new color—opal beautifies this Cincinnati home

To Mr. and Mrs. Clarence Bahlman, 3479 Herschel Avenue, Cincinnati, Ohio, belongs the distinction of being the first to have or their home the new Richardson opal roof. A wholly new color, it attracted much attention even while it was being laid. Completed, it more than fulfilled their expectations of unusual beauty.

This roof is built from the new Richardson opal shingles, no two of which are alike. On each are blended the two most beautiful Richardson colors in slate—weathered brown and jade green.

When these shingles are applied to the roof, just as they come from the bundle, the result is a delicately mottled coloring like the play of light on a rippled mountain lake.

The Richardson Multicrome Roof

This, however, is but one example of the beauty secured in the Richardson Multicrome Roof. Equally attractive is the bronze mosaic coloring made by combining weathered brown and red slate flakes in the same manner. Many other color effects are possible—one to please every taste.

The Multicrome Roof is built of Richardson Super-Giant Shingles, extra large, extra heavy—to give greater beauty, longer endurance. The high quality of its inner materials, too, assures lasting beauty for this roof. Its base is sturdy Richardson felt, for fifty years recognized as the best. And the waterproofing is Viskalt—unusually durable because 90.8% pure bitumen, especially vacuum-processed. 50% thicker, it casts a deeper shadow line on the roof. Thus it is suitable for the more expensive homes as well as those of moderate cost.

Write for our new booklet

If you have not already discovered the beautiful effects made possible by these new colors write us. We will send you our new booklet, Roofs of Distinction, together with samples of Richardson Super-Giant Shingles in opal, weathered brown and other colors. Just use the coupon below.

The RICHARDSON COMPANY

Lockland (Cincinnati) Ohio

Chicago New York City (1008 Fisk Bldg.)
New Orleans Atlanta Dallas

© 1924, The Richardson Company
The service that made friends and the quality that keeps them

The building that is going to house the library, the theatre or public business and pay full returns in freedom from the cost of repairs deserves more than an "ordinary" roof. It should be "roofed for permanence" with a roof tailored to fit. Years of experience, accumulated in the designing and erection of roofs on every type of building have taught Federal engineers the secrets of every roofing problem, and of speed! The Ford Motor Company assembly plant at Memphis, with a quarter million square feet of roof—over six acres—was roofed in nineteen working days. Such a service insures the maximum in roof permanence and roof economy.

Made, laid and guaranteed by the
Federal Cement Tile Company
608 S. Dearborn Street, Chicago

FEDERAL
Cement Tile

"The Roof for Permanence"
Shingles that make your home distinctive

The design of the patented Hexo-Diamond Shingle produces at least two layers over the entire roof. The unusual thickness of Preston Shingles makes a durable roof.

The colors of Preston Shingles are produced by the natural tints of the slate and stone particles with which they are surfaced. These shingles add the final touch of charm to any home whether mansion or cottage.

The design of the patented Hexo-Diamond Shingle makes a pattern which is a series of uniform hexagons.

Preston Hexo-Diamond Shingles are made in three weights: Standard, Extra Heavy and Massive, and beside the Sunset shade in three colors: Green, Blue-Black and Red.

The “massive” weight is much thicker than any other slate-surfaced asphalt shingle on the market and approximately one-third thicker that a Standard No. 1 slate shingle.

We shall be glad to send you name of Regional Distributor on request.

KEYSTONE ROOFING MANUFACTURING COMPANY, YORK, PENN.

MICROSCOPIC ENLARGEMENT

The wearing qualities of Preston shingles depend not only on the quality, but on the quantity of asphalt which each shingle contains. If you examine the edge of a Preston Shingle you will notice that it is practically a solid body of asphalt. This feature of Preston Shingles accounts for their remarkable wearing quality.
REDWOOD tree trunk, sound and free from decay after burial in moist ground under a tree whose annular rings indicated an age of 600 years. Sent to the mill, this centuries-buried Redwood was sawn into good lumber.

Why Redwood houses last for generations

The notion that frame houses are but temporary structures seems ill-founded when one sees the old New England houses—some of them well over 200 years old and built entirely of wood. The discovery of this Redwood tree, still sound, although buried since before Columbus sailed, suggests the durability and permanence of Redwood as a building material. This centuries-buried Redwood was sent to the mill and sawn into good lumber.

The permanence of a frame house depends on the kind of wood that goes into its construction. Some woods are comparatively short-lived and subject to decay. The U. S. Forest Products Laboratory has studied and tested all commercial woods. In "Technical Note No. 173," recently issued, it gives Redwood the highest total rating for durability, lack of shrinkage, strength as a beam or post, ease of gluing, workability and ability to "stay put."

A digest of this government publication entitled "Physical and Mechanical Properties of Redwood in Comparison with Other Woods" has been compiled and will be gladly sent to you on request. It gives an authoritative answer to the questions of what woods to use and what can be reasonably expected from each kind.

In brief, these are some important advantages of Redwood: permeated during growth with a natural preservative, it is not subject to fungus decay and it is unattractive to boring worms and insects; properly seasoned, it does not warp, swell, twist or shrink; it takes and holds paint exceptionally well; it contains no pitch or highly inflammable substances, and therefore reduces the fire hazard wherever used.

SPECIFY Redwood for Siding, Exterior finish, Window, door and cellar frames, Shingles, Foundation timbers and mudsills, Interior trim, Mouldings, Lattice, Lath and plaster grounds, Pergolas, Greenhouses, Garden furniture.

Write for "Physical and Mechanical Properties of Redwood in Comparison with Other Woods."

The Largest Manufacturers and Distributors of California Redwood

Common brick walls finished with Cabot’s Old Virginia White; roof stained with Cabot’s Creosote Stains, Lichen Green. F. L. Cooper, Architect, Chicago

Artistic Treatment of Common Brick

The effect of the brilliant white tone and the flat, velvety texture of Cabot’s Old Virginia White is so pleasing that it transforms the cheapest and dullest brick into an artistic building material. The Virginia White has a real "white-stain" quality, and with the Lichen Green roof this house is a striking and harmonious picture.

Sampies and full information on request:

SAMUEL CABOT, INC. Manufacturing Chemists BOSTON, MASS.
242 Madison Ave., New York 22 West Illinois St., Chicago
125 Market St., San Francisco
Hibernian Bldg., Los Angeles
Cabot’s Creosote Stains, Insulating and Deadening Quilt, Brick and Stone Stains, Conserv Wood Preservatives, etc.

Artistic irregularity in thatch effects

The uneven butts of WEATHERBEST Thatch Red Cedar Stained Shingles afford a welcome relief from the monotony of straight lines formerly considered unavoidable in roof design. In a similar manner WEATHERBEST Angle Butt Red Cedar Stained Shingles lend a pleasing touch of softness to sidewalks. And in all cases WEATHERBEST uniform edge-grain means prolonged attractiveness through color preservation and freedom from warping or curling.

Write for color samples and illustrated booklets.

WEATHERBEST STAINED SHINGLE CO., Inc.
142 Main St., North Tonawanda, N. Y.
Western Plant, Minnesota Transfer, Minn.

The Pacific Lumber Co.

Chicago    New York City    San Francisco    Los Angeles
205 S. Lake Shore Dr. 1104 Madison Ave. 535 California St.
39th & Main Streets

The Largest Manufacturers and Distributors of California Redwood
Neither snow nor rain nor heat—Year after year a roof and the devices that drain it must wage war with the elements. If the battle is mechanical, the years will be many. But if it is chemical, the years will be few. Conductor pipes, gutters, and standing seam roofing of Horse Head Zinc are permanent, for they cannot rust.

New Jersey Zinc

The world’s Standard for zinc products

The New Jersey Zinc Company

Products Distributed by
The New Jersey Zinc Sales Company

NEW YORK   CHICAGO   PITTSBURGH   CLEVELAND   SAN FRANCISCO
Books on Various Technical Subjects

A list of recommended works on topics of importance to architects and engineers

VENTILATION
An exhaustive work on the subject, being the report of the New York State Commission on Ventilation appointed by the Governor at the request of the New York Association for Improving the Condition of the Poor and supported by the Milbank Fund. The work discusses ventilation in buildings of many kinds, but chiefly in schools and other public or semi-public buildings.
620 pp., 7 x 10 inches.
Price, $15

COLLECTED PAPERS ON ACOUSTICS
By Wallace Clement Sabine
The work which is generally regarded as laying the foundation of the study of acoustics and the other branches of effort which grow out of it. It is the result of exhaustive research and much experiment with different materials and methods of building.
278 pp., 7½ x 10½ inches.
Price, $4

TOWN PLANNING AND TOWN DEVELOPMENT
By S. D. Adshead
This practical work takes up the question of town planning in a very broad way, beginning with its sociological aspect and the relation of large productive centers to their recreative and residential areas. Zoning, zoning laws and principles receive due attention, as does also the matter of town planning by private initiative, of which several peculiarly interesting examples are given, with plans and illustrations.
204 pp., 5½ x 8½ inches.
16 plates and 18 diagrams in the text.
Price, $5

THE PLANNING OF APARTMENT HOUSES, TENEMENTS AND COUNTRY HOMES
By Teunis J. Van der Bent
A complete treatise on the planning of these structures, with particular attention given to the methods of utilizing plot areas to the greatest advantage.
355 pp., 9 x 12 inches.
Price, $4.75

HANDBOOK OF ORNAMENT
By Franz Sales Meyer
A standard work on the use of ornament in architecture and decoration. Illustrated with 300 full-page plates of the ornament of all the historic periods of architecture. More than 3,000 illustrations.
548 pp., 6 x 9 inches.
Price, $3.60

ACOUSTICS OF BUILDINGS
By F. R. Watson
A late work on the important subject of acoustics, presenting the most recent results of research and recording the effects of experiment with different building materials under various conditions. The soundproofing of buildings and rooms is also considered.
155 pp., 6 x 9 inches.
Price, $3

HOUSING PROGRESS IN WESTERN EUROPE
By Edith Elmer Wood
In this volume a student of social and housing conditions sums up the progress made in England, France, Holland, Belgium, Germany, Italy and elsewhere in Europe, and gives a comparison with the results which have been attained in America. Excellent illustrations add to the value of the data presented.
210 pp., 5½ x 8 inches.
Price, $3

ARCHITECTURAL COMPOSITION
By Nathaniel Cortland Curtis
An excellent work on composition and particularly on the study and analysis of the plan. Illustrated by drawings by the author of buildings ancient and modern.
250 pp., 7 x 9½ inches.
Price, $6

Any of these volumes will be sent, carriage prepaid, to any address in the United States on receipt of price.

ROGERS & MANSON COMPANY
383 Madison Avenue
New York
American Walnut

improves acoustics and adds beauty to this classical recital hall

THIS classically beautiful recital hall in the Smith Memorial Building at the University of Illinois is a fine example of modern adaptation of the graceful Italian Renaissance style. "In studying this room for its acoustic properties," writes Architect James M. White, "it was felt that considerable wood paneling would be required to increase the resonance. American Walnut was selected as the wood most in keeping with the classical style of architecture adopted."

Here is another quality of American Walnut revealed in this gracious music chamber. Resonance which adds beauty of tone, volume of sound and trueness to pitch to fine music produced within its paneled walls.

Walnut has always been known for its loveliness and for the variety of its patterns and designs; its durability which has defied the ages. It is the wood supreme which combines all the attributes of other good cabinet woods. And it is a thoroughly practical wood for its color is natural, not due to surface staining, so it does not betray dents and scratches. And it is easily kept looking its best.

Architects and decorators ever are finding new charms and gifts—new inspiration—from American Walnut.

Send for the "Walnut Book," useful information and history of American Walnut. Also specification notes for interior trim. Both are free. Write today.

AMERICAN WALNUT MANUFACTURERS' ASSOCIATION
Room 1000, 616 South Michigan Avenue Chicago, Illinois
TRADE-MARKED LUMBER PRODUCTS

Now Include the Four Most Useful Building Woods

Douglas Fir Southern Pine
California White Pine
Oak

The addition of Douglas Fir to Long-Bell products means, furthermore, that this manufacturer is now a producer of the four most useful building woods—Douglas Fir, Southern Pine, California White Pine and Southern Oak.

Trade-marks on certain well-established building materials and household equipment have been of great assistance to architects and builders. They have found them to be a guide in selection.

The same significance of certain names on other materials is equally true with lumber. The Long-Bell trade-mark on lumber and timbers is an identification that assures protection to buyers and stands for a service that the builder has a right to expect.

THE LONG-BELL LUMBER COMPANY
R. A. Long Building Kansas City, Mo.

Lumbermen Since 1875
SYRACUSE HOTEL
Syracuse, N. Y.

FILLING an entire city block, this modern metropolitan hotel offers its guests the ultimate in furnishings, service and accommodations. And, therefore, it has Roddis Flush Doors installed throughout. For no other door provides so great beauty of appearance and durability of service.

Informed architects are now installing Roddis Doors in hotels of their planning, secure in their knowledge that these Doors are fully capable of standing up under the punishing usage they are to receive year after year. The reasons for this extraordinary long door-life are many. The exclusive Roddis design; the 5-ply construction; the 1/2-inch edge-strip of hardwood cemented around the top, bottom and sides, securely sealing the softwood core and keeping out moisture; the special waterproof glue that cements the door together for all time—these are the structural features every architect and every builder wants. As the result of this perfected construction, Roddis Doors can not sag, warp, shrink, swell, separate nor check. They can be fitted snugly. They are sanitary, fire-resisting soundproof. They are guaranteed without condition. And they are the most beautiful doors obtainable. This capacity for endless, perfect service is built into Roddis Doors. It is not on the surface. It can not be detected by outer inspection. The one and only assurance is the name and reputation of the maker. That is why architects make sure their doors are made and guaranteed by Roddis.

Roddis Doors have long been the prevailing choice of architects everywhere—not only for hotels but for buildings of every description, small or large.

Our 78-page catalog deserves permanent place in your files. A letterhead request will bring it.

RODDIS LUMBER & VENEER COMPANY, Marshfield, Wisconsin
Branches in all principal cities throughout the world

For a Quarter-Century, the Largest Makers of Flush and French Doors
Hartmann-Sanders ENTRANCES

Beautify any home

How often you see the beauty marred of an otherwise magnificent home, because the architect’s entrance details were either misunderstood or disregarded!

Hartmann-Sanders craftsmen know, from years of experience, the fine points of entrance construction. They carry out faithfully the architect’s details. They make entrances that add beauty to ANY home.

In Hartmann-Sanders entrances we use architecturally correct Koll Lock-Joint Columns, with close-knitted, interlocking joints, which CANNOT COME APART. As America’s largest designers and makers of fine columns, we enjoy many economies and advantages which result in unusual value.

Send for catalog I-47. Correspondence invited. Co-operation gladly given.

HARTMANN-SANDERS CO.
2187 Elston Ave., Chicago
Showroom: 6 East 39th St., New York City

THE CUTLER MAIL CHUTE

manufactured in our own factory and installed by our own Experienced Factory Erectors, insuring uniform excellence of workmanship and prompt and satisfactory service.

Specify MODEL F Standard Equipment for Cutler quality at minimum cost. Send for form giving information required for estimating.

CUTLER MAIL CHUTE CO.
ROCHESTER, N.Y.
ART METAL Bronze in Modern Buildings

In thousands of banks, public buildings and other edifices, many of them famed internationally for their beauty, the architects have called on ART METAL to interpret their ideals of dignity and beauty in the bronze work.

Whether in bronze doorways and grilles, or steel interior equipment, ART METAL has shown peculiar aptness in producing the warmth and feeling that metal should convey in every beautiful building.

We will be pleased to place at your disposal the result of our third of a century of experience in bronze work, in the form of suggestions, sketches or estimates.

The Booklet, "The Banking House in ART METAL" has been of great interest to architects. We shall gladly send you a copy on request.

Art Metal
JAMESTOWN, NEW YORK
Steel and Bronze Equipment for Banks Steel Office Equipment, Safes and Files
WE'RE PROUD OF IT
It's our first elevator door installation and has been in continuous operation since 1906. Many larger installations have followed it; methods of construction have been materially developed and improved; but through it all we can point with pride to the first fruits of our toil because it possessed that element of distinction which is only achieved through an earnest desire to produce the best in a given piece of work. That is still our motive force and Dahlstrom Elevator Inclosures today possess that same element of distinction as in days gone by.

DAHLSTROM METALLIC DOOR CO.
407 Buffalo Street, Jamestown, New York
NEW YORK DETROIT CHICAGO
25 Broadway 1331 Dime Bank Bldg. 19 S. La Salle St.

Local Representatives in Principal Cities

DAHLSTROM ELEVATOR INCLOSURES IN THE
Wells Fargo Bldg.,
PORTLAND, ORE.

HOFFMAN CASEMENTS
Folding wood casement windows, hinged together in pairs, but not attached to either jamb; providing when set in the position shown, an abundance of fresh air without any direct draft.

Installed to open either in or out, weather tight both ways, clean from inside.

Hoffman Casements are efficient windows for all types of buildings.
THE trade mark symbolizes achievement—it guarantees the quality of the product. Manufacturers, with whom quality is the first consideration, seek also for quality in products needed for their own requirements. It is quite natural that Peelle Doors should be installed in the buildings of the concerns represented by these trade marks.

Peelle Freight Elevator Doors are counterbalanced and vertical in operation. Exactness in design eliminates friction, allows smooth and easy operation. Many other features are described in the new Peelle catalog. It will be gladly sent upon request.

THE PEELLE COMPANY, Brooklyn, N. Y.
Boston • Chicago • Cleveland • Philadelphia and 12 other cities
These mitered corners do not open, because metal does not shrink.

Sanitation Pays

The ample and enduring precautions for sanitation which Knapp Sanitary Metal Trim provides, save many, many dollars—every day, every month, for years and years.

Its hard surfaces resist accumulation of dirt and dust. It is set flush with walls and flooring—there are no corners or crevices to collect dirt and bacteria beyond the reach of the cleaning cloth.

And so cleanliness, good appearance and healthful surroundings are constantly maintained with great economy.

There is a place for Knapp Sanitary Metal Trim in every room—a place where it will save maintenance and upkeep costs and retain that attractive “new and modern” appearance.

Write for complete information.

Knapp Brothers Mfg. Company
1343 S. 55th Court
CHICAGO, ILLINOIS

Knapp Sanitary Metal Trim

Flush Door Casing • Concealed Picture Mould
Bull Nose Metal Corner Protector
Flush Window Trim • Flush Cove Base
Flush Chair and Bed Rail

Originators of Sash Chains
Made in
“Giant Metal,” “Red Metal” and Steel

30,000 feet of our No. 2 “RED METAL” SASH CHAIN used in this building.

Our chains are in daily use in most of the prominent school houses, hospitals, hotels, libraries, post offices and office buildings of the United States.

Why Not Use the Best Sash Chain?
SEE PAGE 138, SWEET’S CATALOG
Send for Our Sash Chain Catalog A-1

The Smith & Egge Mfg. Co.
Bridgeport, Conn.
INTERNATIONAL Steel Casements are to be seen in this as well as in a number of other recently constructed homes of fraternal organizations. Harmonizing with the architectural design, they have the added advantage of being in every way practicable for this type of building.
The Equitable Building
[N Kaw York]
equipped with 2,200
Athey Perennial
Window Shades

The beautiful Equitable Building in New York, designed by Starrett and Van Vleck, is another of America's notable new buildings equipped with Athey Perennial Window Shades.

Because they shade the portion of a window that requires shading, without shutting out all the light—because they add a touch of beauty to a building—and because experience has shown that considering their long years of usefulness they are the most economical shades obtainable—they have become "standard equipment" in fine buildings of all types—offices, homes, apartments, schools, hotels, hospitals, etc.

Write for complete information and prices

Athey Company
6025 West 65th Street - Chicago, Illinois
Its many fine features of serviceability make the Crittall Reversible window, ideal as an office installation.

Crittall Reversible Windows are used in the Jefferson Standard Building, Greensboro, N. C., illustrated at right. Chas. C. Hartmann, Architect.

CRITTALL
Reversible Windows

With highest utility, fine appearance and superior quality, the Crittall Reversible window also offers a price advantage that cannot fail to impress architects and builders.

It combines maximum light with a wide, easily adjusted ventilating range. It is ideal for schools, hospitals, office buildings, and factory offices. Never out of order. Silent and smooth in operation. Complete reversibility permits windows to be washed from inside. Construction is simple and strong and materials of highest selected quality. This window will last the life of the building without repair or mechanical attention.

The services of our engineers are gladly placed at the disposal of architects for assistance in the solution of unusual window problems.

All Crittall Casements and Windows are Made of Crittalloy—the Copper Bearing Steel

CRITTALL CASEMENT WINDOW CO. - Manufacturers - DETROIT
Kawneer Windows

In Solid Nickel Silver or Copper

Made from Heavy Drawn Metal Mouldings
All Joints Thoroughly Welded

BUILT for PERMANENCY

Kawneer Windows are made of metals that have stood the test of centuries against rust and deterioration.

Sturdy construction gives lasting service and permanent materials assure satisfactory operation with no up-keep cost.

Weight Hung or Casement Types. Adequate weathering provided by interlocking mouldings for all engaging parts.

Designed and produced by the makers of Kawneer Solid Copper Store Front Construction.

FULL SIZE DETAILS AND MODELS SHOWN UPON REQUEST

Kawneer Company
Niles, Michigan
Free Forever From Unsightly Cracks

INTERIOR walls constructed with GF Herringbone retain their good appearance. Cracks, sagging and spalling of plaster are eliminated. Original beauty becomes a permanent thing.

The economies possible with Herringbone are worth noting. It is self furring and requires less plaster. Its rigidity makes it easily handled and erected. Labor costs are reduced. And due to the economies of volume production, Herringbone costs no more than ordinary "Key" lath.

You will find the "Herringbone Handbook" filled with usable information. We will gladly mail you a copy on request.

THE GENERAL FIREPROOFING CO., Youngstown, Ohio

Approved by the Underwriters' Laboratories
THE delicate lines and beautiful design of Fenestra Casement Windows add to the charm and interest of any home, large or small. The slender bars and small panes of these fine old English Windows become a part of the room decorations themselves, and contribute to the appearance of the home inside and out.

But Fenestra Casements are more than beautiful—they are entirely practical as well. They are made of solid steel and cannot warp or decay. They are weathered by two-point, flat contact all around. They can be washed from inside the building.

Fenestra Casements can be held open at any angle desired, while an attractive handle locks the swinging leaves firmly and prevents rattle.

Fenestra Casements are made in a wide variety of styles and sizes all of which are described and illustrated in "Fenestra Casements"—a book prepared for architects. We will gladly send you a copy without any obligation on your part.

DETROIT STEEL PRODUCTS CO., C-2262 E. Grand Blvd., Detroit, Mich.
Division of Architectural Construction
Many notable architects specify

TAPESTRY GLASS

Tapestry Glass obscures vision, breaks up direct rays of light and diffuses them in a clear and brilliant flood. By a special exclusive process the surfaces are given a smoothly rounded texture, not unlike fine fabric. These surfaces collect and transmit the maximum of light through the body of Tapestry Glass, which has all the purity and clarity of the finest plate.

Tapestry Glass is now used for windows, partitions, doors and other openings in many of the newest and finest buildings in all parts of the country. For residences, banks, churches, schools, fraternal buildings—wherever the maximum of light is necessary and privacy is desirable Tapestry Glass is now specified by many of the leading architects.

Designs to conform with any architectural plan may be permanently and inexpensively chipped, ground or mitred upon the surface. Names, numbers, trade-marks or crests also look remarkably well when done in this manner. Where necessary, the entire surface of Tapestry Glass, or the background of a design, may be chipped or sand blasted for opacity before installation.

Investigate the possibilities of Tapestry Glass through the nearest glass dealer or write for catalog and samples to the Pittsburgh Plate Glass Company.

PITTSBURGH PLATE GLASS CO.
GLASS VARNISH PAINT
THE WOOLWORTH BUILDING
Cass Gilbert, Architect
Thompson-Starrett Co., Contractors
A Wire Glass installation from the Western Union Building through a Polished Wire Glass installation.

WILSON Rolling Front Wardrobes save space and construction cost, eliminating the need of cloakrooms. They provide ample room for pupils' clothing as well as being thoroughly ventilated. The fronts roll upward, out of sight and out of the way. Additional blackboard surface may be provided, if required.

Ask us for 40-page catalog No. 1

The J. G. WILSON Corporation
11 East 36th Street, New York City
Van Kitchen Equipment

Installed in the Ford Hospital (Detroit)

Van Installation for the Preparation and Serving of Food again selected because of its superiority.

"That Enduring Quality"

is insisted upon by leading Hotels, Hospitals and Institutions, who demand the best obtainable in Kitchen and Dining Room Equipment.

Through three quarters of a century, our Engineers have kept abreast with all that is new and good for our customers; and you are at liberty to consult them at all times regardless of the size of your needs.

The John Van Range & Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD
ANNOUNCING
the opening of the new thirty-two story Straus Building, Michigan Ave. at Jackson Boulevard, Chicago, home of our Western Headquarters.

S. W. STRAUS & CO.
ESTABLISHED 1882
INCORPORATED

Straus Building
505 Fifth Ave. at 46th St.
New York

Straus Building
70 Post Street
San Francisco

Straus Building
Michigan Ave. at Jackson Blvd.
Chicago

42 YEARS WITHOUT LOSS TO ANY INVESTOR
## Selected List of Manufacturers' Publications

The publications listed in these columns are the most important of those issued by leading manufacturers identified with the building industry. They may be had without charge, unless otherwise noted, by applying on your business stationery to The Architectural Forum, 383 Madison Ave., New York, or the manufacturer direct, in which case kindly mention this publication.

### ACOUSTICS
- **Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y.**

- **Masonic Engineering Company, Inc., 333 Bulley Building, Cleveland, Ohio.**
  - Acoustics. Folder. 3½ x 6½ in. 2 pp. Not illustrated. Contains brief advice on the selection of the architect for the Cleveland Public Hall, the reasons for selecting him; and brief reference to "Sound Direction and Control" principles.

- **The Perfect Bathroom. Booklet. 3 x 9 in. 12 pp. Illustrated. Shows full line, Biltin and Projecting Types, installed. For architects and clients.**

- **Bungalow and Small House Plans. Booklet. 8½ x 11 in. 50 pp. Illustrated. Four booklets, showing a variety of designs for small face brick houses, covering 3, 4, 5, 6, 7 and 8 room houses. Price, 25¢ each, $1 for the set.**


- **American Face Brick Association, 1751 Peoples Life Bldg., Chicago, Ill.**

- **Acoustic Engineering Co., 323 Bulkley Building, Cleveland, Ohio. Acoustics. Folder. 3½ x 6½ in. 2 pp. Not illustrated. Contains a series of photographs showing architectural acoustics designed rendered in Acme Brick. Illustrations show examples of buildings in the Southwest in recent years. Sent free to architects applying on their office stationery.**

- **Macoustic Engineering Co., Inc., 323 Bulkley Building, Cleveland, Ohio. Acoustics. Folder. 3½ x 6½ in. 2 Sheet. Illustrated. Contains a series of photographs showing the acoustical treatment of the Cleveland Auditorium in Cleveland, Ohio; list of buildings treated by Macoustic "Sound Direction and Control" principles; many features as to application, appearance, cost, construction, financial saving, and complete explanation of engineering service. Expanding Macoustic. Folder. 7½ x 10. 1 Sheet. Illustrated.**

- **Ashbee—Electric and Hand Power.**
  - **Gill & Geoghegan, 544 West Broadway, New York, N. Y.**
    - General Catalog. 8½ x 11 in. 20 pp. Fully illustrated. Contains special features for homes and factories (with manufacturers' names and phone numbers). Detailed list for each telegraphic address and complete telephone number of manufacturers. The man-Saving Load Lifter, 7½ x 8½ in. 8 pp. Illustrated. Describes hand and electric and Non-Telescopic Hands for handling material in factories.

### BATHROOM ACCESSORIES
- **The Fairfacts Company, 234 West 14th St., New York, N. Y.**
  - Catalog No. 9, June 1924. Illustrated. Describes full line of china fittings for bathrooms.

- **The Man-Saving Load Lifter. Booklet. 3 x 9 in. 12 pp. Illustrated. Shows full line, Biltin and Projecting Types, installed.**

### BOILERS—See Heating Equipment

### BRICK
- **Acme Brick Company, Ft. Worth, Tex.**

- **American Face Brick Association, 1751 Peoples Life Bldg., Chicago, Ill.**

### CONDUIT
- **National Metal Molding Co., 1133 Fulton Building, Pittsburgh, Pa.**
  - Bulletin of all National Metal Molding products. In correspondence folder. 9½ x 11½ in. Illustrated. Full data regarding the steel used for conduit and the fittings.

- **National Metal Molding Co., 1133 Fulton Building, Pittsburgh, Pa.**
  - Bulletin of all National Metal Molding products. In correspondence folder. 9½ x 11½ in. Illustrated. Full data regarding the steel used for conduit and the fittings.

### DAMPPROOFING
- **Philip Carey Co., Lockland, Cincinnati, Ohio.**

### DOORS AND TRIM, METAL
- **The American Brass Company, Waterbury, Conn.**
  - Illustrated pamphlet describing use and adaptability of Extruded Architectural Bronze Shapes for metal window frames, doors, grilles, counter screens, etc. Illustrated pamphlet describing use and adaptability of Extruded Architectural Bronze Shapes for metal window frames, doors, grilles, counter screens, etc. Illustrated pamphlet describing use and adaptability of Extruded Architectural Bronze Shapes for metal window frames, doors, grilles, counter screens, etc. Illustrated pamphlet describing use and adaptability of Extruded Architectural Bronze Shapes for metal window frames, doors, grilles, counter screens, etc.

- **The Compound & Pyrono Door Company, Chicago, Ill.**

### DRIVING MACHINERY
- **Dalton Metalic Machinery Company, 425 Buffalo St., Jamestown, N. Y.**
  - Architectural Catalog. 10 x 14 in. 46 pp. 11 sections. Illustrated. Catalog showing the regular styles and types of hollow metal doors and interior trim. Various types of frames and other architectural shapes are also illustrated. Buildings as They Should Be. Booklet 7½ x 10½ in. A lavishly illustrated publication giving complete technical and practical data on the buildings of different kinds equipped with Dalton doors and trim.

### DRAWING MATERIALS
- **Richardson-Wilcox Mfg. Co., Aurora, Ill.**
  - Fire Doors and Hardware. Booklet. 8½ x 11 in. 64 pp. Illustrated. Describes entire line of tin-clad and corrugated fire doors, complete with automatic closers, truck hangars and all the latest equipment—all approved and labeled by Underwriters' Laboratories.

### DOORS—SERVICE
- **Service Company, The, 101 Park Ave., New York, N. Y.**
  - The Steel Servidor. Specifications, Data, Details and Description. Specifications, Data, Details and Description. Specifications, Data, Details and Description. Specifications, Data, Details and Description.

### DRAFTING MATERIALS
- **American Lead Pencil Company, 230 Fifth Ave., New York, N. Y.**
  - VENUS Pencil in Mechanical Drafting. Booklet. 5¼ x 9 in. 16 pp. Illustrated. Describes pencils, holders, erasers, etc.
Exterior View, Bronze Window, Federal Reserve Bank, New York.


Anaconda Extruded Bronze supplied by The American Brass Company.
SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 102

HEATING EQUIPMENT—Continued


James B. Chow & Sons. 534 S. Franklin St., Chicago, Ill. Gastron, Catalog. 6 x 9 in. 16 pp. Illustrated. New radiator using gas for fuel.


Excelsior Specialty Works, 119 Clinton St., Buffalo, N. Y. Excelsior Water Heater. Booklet. 12 pp. 6 x 9 in. 6 illustrated. Describing the new Excelsior type of generating domestic hot water in connection with heating boilers. (Firepot Coil eliminated.)

The Fulton Company, Knoxville, Tenn. Syphon Vacuum Air Generator. Bulletin. 7-102. 8% x 11% in. 16 pp. Complete data on Syphon temperature regulators for gas and oil. Catalog 100, complete line Syphon Heating Specialties.

Damper Regulator Co., Wallingford, Conn. Damper Regulators, Air and Vent Valves. Catalog No. 100. 3% x 6% in. 24 illustrated. Contains detailed information on important types of damper regulators, including Sylphon Damper Regulators for steam and vapor systems. Syphon Air and Vent Valves.

Illinois Engineering Co., Racine Ave., Chicago, Ill. Mississippi Wire Glass. Catalog. 3% x 8% in. 32 illustrated. Covers the complete line of Mississippi Wire Glass. Plate Glass Mfrs. of America, Pittsburgh, Pa.; Plate Glass. Booklet. 5% x 9% in. 12 pp. Describes manufacture and use of plate glass, with sizes.

American Steel Car Co., 414 E. Jackson Blvd., Chicago, III. Ars Ecclesiastica Booklet. 8% x 11 in. 48 illustrated. A small booklet with complete description of various types of folding and accordion door hangers. Full-size details are illustrated and every hinge and fitting is shown.

Pyrobar Floor Tile. Folder. 8% x 11 in. Illustrated. Data on building floors of hollow tile, and tables on floor loading.

Excelva Specialty Works, 119 Clinton St., Buffalo, N. Y. Excelsior Water Heater. Booklet. 12 pp. 6 x 9 in. 6 illustrated. Describing the new Excelsior type of generating domestic hot water in connection with heating boilers. (Firepot Coil eliminated.)

The Fulton Company, Knoxville, Tenn. Syphon Vacuum Air Generator. Bulletin. 7-102. 8% x 11% in. 16 pp. Complete data on Syphon temperature regulators for gas and oil. Catalog 100, complete line Syphon Heating Specialties.

Damper Regulator Co., Wallingford, Conn. Damper Regulators, Air and Vent Valves. Catalog No. 100. 3% x 6% in. 24 illustrated. Contains detailed information on important types of damper regulators, including Sylphon Damper Regulators for steam and vapor systems. Syphon Air and Vent Valves.

GARDEN ACCESSORIES


Allen, Louis L., 521 Madison Ave., New York, N. Y.

Davey Tree Expert Company, The, 907 Elm St., Kent, Ohio.

American Seating Co., 14 E. Jackson Blvd., Chicago, Ill. Ars Ecclesiastica Booklet. 8% x 11 in. 48 illustrated. The complete line of Mississippi Wire Glass.

Mississippi Wire Glass, 220 Fifth Avenue, New York, N. Y.

Plate Glass Mfrs. of America, Pittsburgh, Pa.; Plate Glass. Booklet. 5% x 9% in. 12 pp. Describes manufacture and use of plate glass, with sizes.

Pyrobar Floor Tile. Folder. 8% x 11 in. Illustrated. Data on building floors of hollow tile, and tables on floor loading.

American Steel Car Co., 414 E. Jackson Blvd., Chicago, III. Ars Ecclesiastica Booklet. 8% x 11 in. 48 illustrated. A small booklet with complete description of various types of folding and accordion door hangers. Full-size details are illustrated and every hinge and fitting is shown.

Pyrobar Floor Tile. Folder. 8% x 11 in. Illustrated. Data on building floors of hollow tile, and tables on floor loading.

American Steel Car Co., 414 E. Jackson Blvd., Chicago, III. Ars Ecclesiastica Booklet. 8% x 11 in. 48 illustrated. A small booklet with complete description of various types of folding and accordion door hangers. Full-size details are illustrated and every hinge and fitting is shown.

Pyrobar Floor Tile. Folder. 8% x 11 in. Illustrated. Data on building floors of hollow tile, and tables on floor loading.

American Steel Car Co., 414 E. Jackson Blvd., Chicago, III. Ars Ecclesiastica Booklet. 8% x 11 in. 48 illustrated. A small booklet with complete description of various types of folding and accordion door hangers. Full-size details are illustrated and every hinge and fitting is shown.
Standard Equipment On All These Steam Boilers

Alco
Abendroth
Ame
Bernhard
Birchfield
Boiler
Costeville

Coal
Floral City
Kewanee
National
Newport
Novelty
Oil City

Febco
Fiebre
Froz

Richardson
Staples

Also Keystone boiler and Economy boiler with No. 924 Sylphon Damper Regulator as standard equipment.

No. 924 Sylphon Damper Regulator for low pressure steam boilers.

Every Coal Fired Boiler Burns Coal and "Air"
— the coal costs money — the air is FREE

A BOILER, that in the language of the householder, is "a hog for coal," is bad business for both the householder and the boiler manufacturer. The 21 leading manufacturers who have standardized on equipping their boilers with Sylphon Damper Regulators know that these regulators will feed just the right amount of air to economically burn a minimum of coal, obviate all overheating or underheating, and prove for all time the necessity of running up and down stairs to adjust drafts.

The secret of the Sylphon accuracy is the Sylphon Bellow.

This bellows, drawn from a flat sheet of metal without soldered seam is at once the most flexible and powerful expansion member known to engineers. There is only one Sylphon bellow. It is made by The Fulton Company of Knoxville, Tennessee, and is used exclusively in Sylphon Damper Regulators.

Other famous Sylphon Damper Regulators are
No. 45-A for hot-water boilers; No. 925 for vapor heating systems; No. 924 for low pressure (down to 6 cm.) steam boilers.

All Sylphon Damper Regulators are made in standard iron pipe sizes and may be used on any make of boiler. Jobbers carry stocks.

Ask for Bulletin DR

THE FULTON COMPANY, KNOXVILLE, TENN.

New York  Chicago  Detroit  Boston  Philadelphia  Representatives in all principal cities in U.S.
Canadian representatives: Darling Bros., Ltd., 120 Prince Street, Montreal, Canada
HEATING AND VENTILATING—Continued

Thatcher Furnace Co., 39-41 St. Francis St., Newark, N. J.

Thatcher Heating and A Few Installations, 25 pp. 6 x 9 in. Illustrated. Describes types of buildings in which Thatcher Heaters are installed together with cuts and descriptions of the installations in schools, factories, and hotels. Booklet. 9 x 6 in. Illustrated. The design and equipment of school cafeterias with photographs of installations and plans for standard installations.


Hotel, Apartment Building, Club and Institution Installations. Portfolio. 17 x 11 in. 106 pp. Illustrated. Shows, mostly by plates, how the Albert Pick Company equips hotels completely from top to bottom.

Equipment for Cafeterias, Lunch Rooms, Restaurants, and Dining Rooms. Portfolio. 17 x 11 in. 106 pp. Illustrated. The last word in cafeteria equipment to meet all requirements.

Thatcher Furnace Co., 39-41 St. Francis St., Newark, N. J.

The famous Thatcher “Twin-Fire” combination coal and gas range.

Thatcher is the heater for that building, 8 pp. 8 x 9 in. Illustrated. Contains cuts, dimensions, and descriptions of Thatcher Heaters for architects’ use.

LABORATORY EQUIPMENT

Kewanee Manufacturing Company, 141 Lincoln St., Kewanee, Ill.

Kewanee Book of Laboratory Furniture. Catalog. 7 1/2 x 11 in. 468 pp. Illustrated. For schools, colleges, technical institutes, hospitals, etc., including floor plans, illustrated laboratories, equipment, and laboratory design and equipment. Illustrated engineering data for mechanical ventilation and illustrations of special plumbing fixtures for laboratory use.

LANTERNS

Todhunter, Arthur, 414 Madison Ave, New York Hand Wrought Lanterns. Booklet. 5 1/2 x 4 3/4 in. 20 pp. Illustrated in black and white. Price list. Lanterns appropriate for exterior and interior use, designed from old models and meeting the requirements of modern lighting.

LATH, METAL AND REINFORCING

The General Fireproofing Company, Youngstown, Ohio.

Herringbone Metal Lath Handbook. 8 1/2 x 11 in. Standard specifications for Cement Stucco on Herringbone Rigid Metal Lath and interior plastering.

Milwaukee Corrugating Co., Milwaukee, Wis.

The Milcor Manual. Booklet. 8 1/2 x 11 in. 64 pp. Illustrated. Covers Milcor methods and materials, metal, concrete, corner beads, steel domes, channels, etc.

National Steel Fabric Company, Pittsburgh, Pa.

Folding 8 1/2 x 11 in. 6 pp. Illustrated. Describes National Stucco-Plaster Reinforcement, a base for exterior stucco and interior plastering, composition flooring, etc., with photographs and drawings.

Northwestern Expanded Metal Co., 934 Old Colony Building, Chicago, Ill.

Fireproof Construction Catalog. 6 x 9 in. 72 illustrated. Hand book of practical suggestions for architects and contractors, Describing Nemo Expanded Metal Lath.

LAUNDRY CHUTES

The Plauder Company, 217 Cutler Building, Rochester, N. Y.

Plauder Glass Lined Steel Laundry Chute. Booklet. 5 1/2 x 7 1/4 in. 16 pp. Illustrated. A beautifully printed brochure depicting in detail with architec's drawings and specifications for installation of Laundry Chutes.

CUTLER GLASS LINED STEEL LAUNDRY CHUTES. Contains views of installations and list of representative examples.

MAIL CHUTES

Cutler Mail Chute Company, Rochester, N. Y.

Cutler Mail Chute Model F. Booklet. 4 x 9 1/2 in. 8 pp. Illustrated.

MANTELS

Arthur Todhunter, 414 Madison Ave, New York, N. Y.

Mantels and Fireplace Equipment. Booklet. 8 1/2 x 11 in. Illustrated. Separate sheet plates showing mantels installed and furnished, also andirons and grates grouped with suitable pieces, also lanterns, weather-vanes and hand-wrought hardware. All sizes and descriptions given on each plate.

MARBLE


Why Georgian Marble is Better. Booklet. 4 1/2 x 5 in. Gives analyses, physical qualities, comparison of absorption with granite, opinions of marble experts. Conving Convicing Proof. Booklet. 3 1/2 x 5 1/2 in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of Architects and Sculptors.

METAL LATH—See Lath, Metal and Reinforcing

METALS

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

Reference Book. Pocket Ed. 3 1/2 x 4 1/2 in. 160 pp. Illustrated. Covers the complete line of Sheet Metal Products for Apollo and Apollo-Keystone Galvanized Sheets. Catalog. 8 1/2 x 11 in. 30 illustrated.

Research on the Corrosion Resistance of Copper Steel. Booklet. 8 1/2 x 11 in. 24 pp. Illustrated. Technical information on results of atmospheric corrosion tests of various sheets under actual weather conditions.

SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 104

KITCHEN EQUIPMENT—Continued

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


Hotel, Apartment Building, Club and Institution Installations. Portfolio. 17 x 11 in. 106 pp. Illustrated. Shows, mostly by plates, how the Albert Pick Company equips hotels completely from top to bottom.

Equipment for Cafeterias, Lunch Rooms, Restaurants, and Dining Rooms. Portfolio. 17 x 11 in. 106 pp. Illustrated. The last word in cafeteria equipment to meet all requirements.
Their light weight saves building dollars

Architects and owners planning new structures or additional floors on present buildings will want to look into the many economies of Pyrofill monolithic floors.

This poured-in-place construction consists of properly spaced and anchored steel cables to which the live loads are carried by gypsum slabs. Among its chief advantages are: light weight, quick set, high insulating value.

Weighing only 50 lbs. per cubic foot (one-third the weight of concrete), Pyrofill floors allow lighter supporting steel, thereby effecting a real saving in total building costs. Millions of feet have been installed throughout the country.

There is a type of Pyrofill (poured slabs) or Pyrobar (precast voids) for every floor design. We contract to erect them. Mail coupon for bulletin describing Pyrofill construction.

UNITED STATES GYPSUM COMPANY
General Offices:
Dept. R, 205 West Monroe Street, Chicago, Illinois
SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 106

METALS—Continued

Chase Metal Works, Waterbury, Conn.

How to Order Brass. Booklet. 8 1/2 x 5 1/2 in. Illustrated. Tells about brass and its uses, tempers, tolerances, colors and
suitable for various uses. Warns against the usual mistakes
that result from wrong specifications. Contains complete table of a variety of tempers, tolerances, uses, etc.

Chase Metal Works, Waterbury, Conn. 8 1/2 x 11 in. 8 pp. Illustrated. Peri-
odic house organ issued once a month or so. Contains articles of interest to the customers containing employ-
ees and brass industry in general. Ask to be put on the
list.

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

The International Nickel Company, New York City. 8 1/2 x 11 in. 190 pp. An extremely fine treatise on the history, manufacture, and use of these commodities.

The Ripon Company, Cleveland, Ohio.

Ripollin Specifications. Book. 8 x 10 1/2 in. 12 pp. Complete specifications and general instructions for Ripollin's original Holland enamel paint. Also directions for proper finish-
ing of wood, metal, brick, concrete, and other surfaces.

Why Ripollin Has an International Reputation. 8 x 10 1/2 in. 24 pp. Designed for the architect's files to illustrate the many varied uses of Ripollin Enamel Paint in all parts of the world. Profusely illustrated.

Ruhrood Co., The (formerly the Standard Paint Co.), 95 Madison

Preservative Coating. Booklet. 6 x 9 in. 15 illus. Presented, Pre-
sents in a concise manner the properties and uses of the Ruhrood Company's various paint preparations.

Shorwin-Williams Company, 601 Canal Rd., Cleveland, Ohio.

Painting Concrete and Stucco Surfaces. Bulletin No. 1. 8 1/2 x 11 in. 8 pp. Illustrated. A complete treatise with complete specifi-
cations on the subject of Painting of Concrete and Stucco Surfaces. Color chips of paint shown in bulletin.

Imitation Finish for Interior and Exterior Surfaces. Bulletin No. 2. 8 1/2 x 11 in. 12 pp. Illustrated. Thorough discussion including complete specifications for securing the most satisfactory finish on interior and exterior walls and trim.

Painting and Decorating of Interior Surfaces. Bulletin No. 3. 8 1/2 x 11 in. 20 pp. Illustrated. An excellent reference book on Flat Wall Finish including texture effects, latest materials that come on the market in this country as a result of the constant demand and desire for new materials for exterior and interior work. Every architect should have a copy. A wonderful book.

Protective Paints for Metal Surfaces. Bulletin No. 4. 8 1/2 x 11 in. 12 pp. Illustrated. A highly technical subject treated in a simple, understandable manner.

Sonneborn Sons, Inc., 116 Fifth Avenue, New York, N. Y.

Paint Specifications. Booklet. 8 1/2 x 10 1/2 in. 4 pp.

PAINTING—See Millwork

PARTITIONS

Circle "A" Products Corporation, Champaign, Ill.

Catalog. 11 1/2 x 9 in. 58 pp. Illustrated. Gives information data and illustration of Circle "A" Sectional Office Partitions, Erection Instructions for Ceiling Hanger and Skids, and Extensive and Removable. Folder. 8 1/2 x 11 in. illustrated with drawings. Erection Instructions for Seven-Post Partitions Sectional and Removable. Folder. 8 1/2 x 11 in. Illustrated with drawings.

Improved Office Partition Company, 22 Grand St., Elmhurst, L. I.


Improved Office Partition Company, 23 Grand St., Elmhurst, L. I.

Telescope Partition. Illustrated. Describes use of cutting, folding, and various parts and accessories. Telescope Partition can be erected.


Partitions. Booklet. 7 x 10 in. 32 pp. Illustrated. Describes complete line of folding partitions in hang and single styles of sliding, parallel and accordion and flush door partitions.

U. S. Gypsum Co., Chicago.

Pyrobar Partition and FF Illustrated. Describes use and advantages of hollow tile for office partition units in various woods, particularly in schools and churches. Also the installation of the Wilcox School partitions.

W. S. Gypsum Co., Chicago.

Pyrobar Partition and FF Illustrated. Describes use and advantages of hollow tile for office partition units in various woods, particularly in schools and churches. Also the installation of the Wilcox School partitions.

PICTURE

American Brass Company, Waterbury, Conn.

Bulletin. 8 1/2 x 11 in. 24 pp. Illustrated. Describes six standard types of seamless brass and copper pipe, shows typical installations of brass pipe, and gives general discussion of the corrosive effect of water on iron, steel and brass pipe.

A. M. Byers Company, 231 Water St., Pittsburgh, Pa.

Bulletin. 8 1/2 x 11 in. 40 pp. Illustrated. Descriptions of materials and processes employed in manufacturing Byers genuine wrought iron pipe. Factors influ-
encing corrosion. Gives tables and graphs showing the effects of corrosive substances, tests, etc., and tabulated records of the life of iron and steel pipe in various kinds of service.


Bulletin 38. The Installation Cost of Pipe. 8 x 10 1/2 in. 40 pp. Illustrated. Analyzes and tabulates cost of installation of water and power and industrial plants, office buildings, hotels, resi-
dences, etc.
The Master Paint of the Century
—and 9 Reasons Why

"Hockaday or its equal." It has come about that this comparative merit clause is now often inserted in painting specifications as a protection and insurance of a 100% job. Why? Because other paints so often "fliver" and because Hockaday has been proved the only paint which will at all times, when properly applied, live up to the "nine points of superiority" forever fixed as the Hockaday standard by its makers. You CAN'T find its equal. Read and check against other paint performance as you have observed it—

- Hockaday painted walls will not show limeburn
- Hockaday painted walls will not air check
- Hockaday painted walls will not peel
- Hockaday paint needs no size or primer
- Hockaday paint needs no brushing. Flow it on
- Hockaday paint spreads over more surface
- Hockaday paint dries quicker
- Hockaday walls can be washed clean
- Hockaday paint lasts six to twelve years

Our big illustrated book, "Solving Your Painting Problems" covers each point in detail—the illuminating facts about Hockaday, the Master Paint of the Century. Complete Specifications, Page 1558, Sweet's Catalog

THE HOCKADAY COMPANY, 1223-1229 Carroll Ave., CHICAGO

HOCKADAY
THE WASHABLE PAINT FOR ALL INTERIORS
SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 108

PLUMBING EQUIPMENT

American Brass Company, Waterbury, Conn. Benedict Nickel Illustrated pamphlet descriptive of Benedict Nickel White Metal for high grade plumbing fixtures./root-


Cranes, Pumping, Etc. Crane Company, 836 S. Michigan Avenue, Chicago, Ill. Catalog "A," 4 x 6% in. 700 pp. Illustrated. Shows a full line or industrial tractors under their own power from floor to roof. A brief discussion of elevator garages, ordinary ramp garages, and other types of buildings of this kind. 

Crane Products in World Wide Use. Catalog. 5 x 9% in. 24 pp. Illustrated. Describes and illustrates the different Crane products and heating systems in several kinds of homes.

Grinnell Bulletin Booklet. 10% x 7% in. Illustrated. Issued monthly. Describes and illustrates the different Grinnell products.

Ramps

Ramp Buildings Corporation, 115 Broad St., New York, N. Y. The d'Humy Motor ramp System of Building Design. Booklet. 5% x 11 in. Illustrated. Describes and illustrates the d'Humy motor ramp construction for garages, service buildings, factories, warehouses, etc., where it is desirable to drive motor vehicles or industrial tractors under their own power from floor to floor. Informational Pamphlet for Garages. Leaflet. 6% x 11 in. 4 pp. Illustrated. A brief discussion of the economics of elevator garages, ordinary ramp garages, and d'Humy Motor Garages.


REINFORCED CONCRETE—See also Construction, Concrete


North Western Steel Expanded Metal Company, Chicago, Ill. Designing and constructing buildings with expanded metal. Covers the use of Econo Expanded Metal for various types of reinforced concrete construction.

ROOFING

American Brass Company, Waterbury, Conn. Service Sheets 41-1 and 43-2, standard specifications and methods and laying copper roofings, flashing, hips, valleys, decks, gutters and leaders.


Copper—Its Effect Upon Steel for Roofing Tin. Catalog. 8% x 11 in. 20 pp. Illustrated. Describes and illustrates the merits of high grade roofing tin plates and the advantages of the copper-steel alloy.

The Testimony of a Decade. Booklet. 4% x 6% in. Illustrated. With Graphic Chart and illustration showing losses to various Iron and Steel Sheets roofing, from atmospheric corrosion.

Philip Carey Co., Lockland, Cincinnati, Ohio. Architects' Specifications for Carey Built-up Roofing. Booklet. 8 x 10% in. 24 pp. Illustrated. Complete aid in specifying the different types of built-up roof ing to suit the kind of roof construction to be covered.

Carey Built-up Roofing for Modern School Buildings. Booklet. 6 x 8% in. 10% x 11 in. 20 pp. Illustrated. Describes briefly "Ancient" Tapered Mission Tiles, hand-made, with full corners and designed to be applied with irregular exposures.

Federal Cement Tile Co., 110 So. Dearborn St., Chicago, Ill. The Indestructible Roof. Booklet. 10 x 13 in. 32 pp. Illustrated. Describes and illustrates the installation of permanent concrete interlocking tile, tile with glass insets, flat tile and channel tile design and various designs of roof construction and methods of application.

Johns-Manville, Inc., Madison Ave. & 41st St., New York, N. Y. Johns-Manville B. C., 50th Rev., containing latest and most complete line of single standard roofing and waterproofing. includes information on their economy and durability.

Richardson Company, The, Lockland, Ohio. Roofs of Distinction. Booklet. 3% x 6% in. 10 pp. Illustrated. Contains many valuable suggestions for the architect.

Ukotie-Celadon Company, 104 So. Michigan Ave., Chicago, Ill. "Ancient" Tapered Mission Tiles. Leaflet. 8% x 11 in. 24 pp. Illustrated. For architects who desire something cut of the ordinary, this leaflet has been prepared. Describes briefly the "Ancient" Tapered Mission Tiles, hand-made, with full corners and designed to be applied with irregular exposures.


New Jersey Zinc Company, 160 Front St., New York, N. Y. Steel Roofs and Standing Seam Roofing. Catalog. 4% x 6% in. 120 pp. Illustrated. Describes and illustrates the standard and economy types of roofing materials and the advantages of the standing seam roofing made from Horse Head Zinc. Contains information on their economy and durability. Illustrated.

Richardson Company, The, Lockland, Ohio. Roofs of Distinction. Booklet. 3% x 6% in. 10 pp. Illustrated. Contains many valuable suggestions for the architect.

Ukotie-Celadon Company, 104 So. Michigan Ave., Chicago, Ill. "Ancient" Tapered Mission Tiles. Leaflet. 8% x 11 in. 24 pp. Illustrated. For architects who desire something cut of the ordinary, this leaflet has been prepared. Describes briefly the "Ancient" Tapered Mission Tiles, hand-made, with full corners and designed to be applied with irregular exposures.

Ted Starr doesn't want
a cuff on his trousers

Jenkins, salesman at A. De Pinna, recognized his signal and stepped to the city phone. "Hello, Mr. Starr—Oh yes—you don't want a cuff? All right, hold the wire—I'll fix that in a minute." Setting down the receiver of the city phone, Jenkins dialled two figures on a handy P-A-X phone and spoke directly to the alteration department. "Never mind about the cuff on 7444A—" Then turning to the city phone—"All right, Mr. Starr—No trouble—Tomorrow sure. Goodbye."

Whether your client makes clothes, rubber tires or chewing gum, he will find that, like De Pinna, Goodyear and Wrigley, his organization will profit by the P-A-X.

By means of the P-A-X, customers may talk to his entire organization through him. While they hold the city wire he can dial any department and get information for them. No calling back. Service like this builds business.

For 24 hours a day the P-A-X handles all inter-communication calls instantly and accurately. There is no operator to delay connections, give the wrong number, or to "listen in" on conversations.

Besides Interior Telephony, the Automatic Electric Services of the P-A-X include Code Call, Conference Wire, Executives' Priority Service, etc. For nearly 2,000 organizations in every field of business, the P-A-X has proved itself a vital necessity and actually paid for itself in a short time by saving operators' salaries.
SELECTED LIST OF MANUFACTURERS' PUBLICATIONS—Continued from page 110

ROOFING—Continued

A Specific Way to Outwit the Weather. Booklet, 10 x 12 in. 4 pp. Illustrated.

RUBBER—Continued


UNITED SALES CORPORATION, Canton, Ohio

Better Sheet Metal. 6 x 9 in. 18 pp. and cover. Illustrated. Describes the complete line of the Crane Co. and will wear indefinitely.

Weatherbest Stained Shingle Co., Inc., North Tonawanda, N. Y.

Brasco Manufacturing Co., 5025-35 South Wabash Avenue, Chicago, Ill.

Instructions for Laying Built-up Roofs. Booklet, 8 1/2 x 11 in. 32 pp. Illustrated. Describes the complete line of the Crane Co. and will wear indefinitely.

STORE FRONTS—Continued

Kawneer Co., The, Niles, Mich.

A Collection of Successful Designs. Catalogue, 9 1/4 x 6 1/4 in. 64 pp. Illustrated. Describes the complete line of the Crane Co. and will wear indefinitely.

Zori Drawn Metals Company, Chicago, Ill.

Zori Safety Key-Set Store Front Construction. Catalogue. 8 1/2 x 11 in. 60 pp. Illustrated. Contains plainly written instructions for the use of stucco, stucco base, plaster base and insulation base.

Bishopscraft Manufacturing Co., 103 East Ave., Cincinnati, Ohio.

Specifications and Working Details. Booklet. 7 1/2 x 10 1/2 in. 40 pp. Illustrated.

Associated Tile Manufacturers, The, Beaver Falls, Pa.

Basic Specification and Working Details. Booklet. 7 1/2 x 10 1/2 in. 40 pp. Illustrated.

Associated Tile Manufacturers, The, Beaver Falls, Pa.

Basic Specification and Working Details. Booklet. 7 1/2 x 10 1/2 in. 40 pp. Illustrated.

Associated Tile Manufacturers, The, Beaver Falls, Pa.

Basic Specification and Working Details. Booklet. 7 1/2 x 10 1/2 in. 40 pp. Illustrated.

Associated Tile Manufacturers, The, Beaver Falls, Pa.

Basic Specification and Working Details. Booklet. 7 1/2 x 10 1/2 in. 40 pp. Illustrated.

Associated Tile Manufacturers, The, Beaver Falls, Pa.

Basic Specification and Working Details. Booklet. 7 1/2 x 10 1/2 in. 40 pp. Illustrated.
A Practical Investment

Here is a college building without aspiring towers, nor verdant campus lawns.

The building is designed to give the utmost service for the money invested. It is permanent. Good materials make it so. The investment has been concentrated on practical purposes.

A Carey built-up roof was the natural and logical choice because it is supremely good, and gives not only the longest service, but the utmost service in the long run per dollar of cost.

There is a Carey roof for every building just as this particular Carey roof is ideal for this building.

THE PHILIP CAREY COMPANY
504-524 Wayne Ave., Lockland, Cincinnati, O.
SELECTED LIST OF MANUFACTURERS’ PUBLICATIONS — Continued from page 112

VALVES—Continued

Jenkins Bros., 80 White Street, New York. Catalog. 11 x 17 in. 36 pp. Illustrated. Describes the "Lippert" Venetian blinds, method of operation, advantages of installation to obtain perfect control of light in the room.

VENTILATION

Globe Ventilator Company, 265 River Street, Troy, N. Y. Catalog. 8 x 11 in. 12 pp. Illustrated. Describes the "Globe" ventilating systems, showing all types of installations, and assumes the adaptability to meet varying requirements.

VENETIAN BLINDS

Burlington Venetian Blind Co., Burlington, Vt. Catalog. 8 x 11 in. 25 pp. Illustrated. Describes and illustrates the use of the Ventador for hotels, clubs, offices, etc.

WALL PAPER

W. H. S. Lloyd Company, 105-7 West 40th St., New York City. Architectural Woodwork. Catalog. 8 x 11 in. 24 pp. Illustrated. Describes the architec- tural woodwork, including the use of mahogany, beech, walnut, and other varieties, in new and old work.

WATER PROOFING

California White and Sugar Pine Mfrs. Assn., San Francisco, Cal. Catalog. 12 x 18 in. 30 pp. Illustrated. Full size details of various types of waterproofing screens, including the variety it offers for attractive architectural design.

WATER PURIFIERS

The Kawneer Company, Niles, Mich. Kawneer Simplex Windows. Catalog. 8 x 10 1/2 in. 16 pp. Illustrated. Complete information, with measured details, on the use of Kawneer Simplex windows, made of bronze. Shows installations in residences and buildings of all sorts.

WATER VALVES


The Architectural Forum, December, 1924

WINDOWS, CASEMENT

Crittall Casement Window Co., 1051 Hearn Ave., Detroit, Mich. Catalog. 11 x 17 in. 36 pp. Illustrated. Describes steel casement windows, their advantages, details and specifications for installation.

Fenestra Reversible Ventilator Windows. Booklet. 8 x 11 in. 30 pp. Illustrated. Describes the Fenestra Reversible Casement Window, as well as the variety it offers for attractive architectural design.

Fenestra Counter-Balanced Windows. Catalog. 8 x 11 in. 111 pp. Illustrated. Details and specifications are thoroughly covered in the Fenestra General Catalog.

Fenestra Industrial Window Walls. Catalog. 8 x 11 in. 111 pp. Illustrated. Describes the production of steel and glass walls, in various types, for truss, residential, office buildings and other uses.

INTERNATIONAL CASEMENT COMPANY, INC., Jamestown, N. Y. Catalogue. 8 x 11 in. 223 pp. Contained complete data on all types of Truscon Steel Windows, etc.

W O O D — See also Millwork


The Kawneer Company, Niles, Mich. The Kawneer Simplex Windows. Catalog. 8 x 10 1/2 in. 16 pp. Illustrated. Complete information, with measured details, on the use of Kawneer Simplex windows, made of bronze. Shows installations in residences and buildings of all sorts.

Curtis Companies Service Bureau, Clinton, Iowa. Better Built Homes, Vols. XV-XVIII, inc. Catalog. 9 x 12 in. 40 pp. Illustrated. Designs for houses of five to eight rooms, respectively, containing various types, by Truscon & Ackerman, architects, for the Curtis Companies.

Long-Bell Lumber Co., Kansas City, Mo. The Perfect Floor. Booklet 5 x 7 1/4 in. 16 pp. Illustrated. Valuable for the data given on the use of wood for floors.

Curtis Companies Service Bureau, Clinton, Iowa. The Kawnee Reversable Window Fixtures, 9 x 6 1/2 in. 16 pp. Illustrated. Describes the production of posts and their use in various ways.


Pacific Lumber Company, 332 So. Michigan Ave., Chicago, Ill. Advent Windows, Steel and Bronze. Catalog. 9 x 12 in. 36 pp. Illustrated. Describes and illustrates the Advent Windows, Steel and Bronze, including their uses, in various uses of California Redwood.

Redwood Construction Digest, Booklet. 8 1/4 x 11 in. 16 pp. Illustrated. Redwood and Its Uses in the Construction Field. Contains specifications and all information of interest to architects and builders generally.

WOOD FINISHES—See Paints, Varnishes, Stains
CALIFORNIA PINES
PAINT PERFECTLY

California White Pine and California Sugar Pine are woods endowed by Nature with physical characteristics that make them unusually well suited to paint treatment.

- California Pines are soft-textured and close grained. Their use immediately eliminates the difficulties of hard layers or streaks, raised or wavy grain. They are readily dressed to a velvety, smooth surface, and assure a permanent flat painted finish.

- These woods are practically free from pitch and resins. This eliminates, at the outset, all dangers of discoloration from oils working through the paint or enamel.

- Properly seasoned, California Pines have a minimum tendency to warp, shrink, or swell. This means they will "stay put"; seams and joints will not open up to leave unpainted strips exposed.

- California Pines are light in color. They do not "oppose" the paint. For this reason, any color scheme may be successfully applied with an economy of time and materials - especially the prevailing light tones for interior and exterior painting.

California WHITE & SUGAR PINE
Manufacturers Association
414 CALL BLDG., SAN FRANCISCO
Also producers of
CALIFORNIA WHITE FIR, CALIFORNIA DOUGLAS FIR, CALIFORNIA INCENSE CEDAR

California White Pine
California Sugar Pine
A 200-year supply of these woods now stands in the region where our mills operate. Natural growth of standing timber, supplied by nature reproduction and reforestation, assures a supply of these valuable building woods for all time.


For the exquisite paneling, staircase and trim of the reception hall
Wired with Simplicity

Penn. Central Power Co.
Saxton Substation
Day & Zimmermann, Inc., Engrs.

Simplex Wires and Cables are rendering satisfactory service in many of the larger power stations of the country. Insulated with rubber, paper or varnished cambric and covered with braid, lead or steel armor, they are made for the particular conditions under which they are installed.

Why not submit your specifications to us?

Simplex Wire & Cable Co.
— Manufacturers —
201 Devonshire Street - Boston

Chicago
San Francisco
New York

Factory and Main Office at Boston

Hitchings Sunshine Shops

When it comes to Greenhouses
Come to

Hitchings & Company

General Offices and Factory: Elizabeth, N. J.

NEW YORK
101 Park Avenue

PHILADELPHIA
Empire Building
13th and Walnut Streets

WILKESBARRE, PA.
P. O. Box 218

BOSTON
161 Massachusetts Ave.
Why Dr. Paterno's Masterpiece is Kernerator-Equipped

MAGNIFICENT Hudson View Gardens, Dr. Charles V. Paterno's new 354-apartment achievement, is 100 per cent Kernerator equipped! Naturally, the time-proven economy and convenience of the Kernerator exactly fitted Dr. Paterno's intention of creating a truly modern apartment community. Three hundred and fifty-four handy hopper doors—one in each kitchen—mean instant, right-at-hand garbage and waste disposal to every owner-tenant.

What an attraction to the buyer—and what a tremendous saving, too! No ill-smelling garbage pails at kitchen doors. No double or treble handling of garbage within the building before it is finally disposed of. No waiting for the tardy call of the janitor. No replacement of garbage pails either, for there are none. Just a neat, metal door into which every bit of household waste is dropped as fast as it accumulates—and then forgotten!

No Operating Cost—No Fuel Required!
The Kernerator, as the cut-away view shows, consists of a brick combustion chamber, built in at the base of the chimney in the basement, and connecting with hopper doors on floors above. It handles all garbage, waste, tin cans, bottles, broken glass, crockery, papers and magazines, razor blades, sweepings—in fact, trash and refuse of every description. A patented, scientifically designed by-pass feature quickly air-dries the accumulation, so it lights easily and is readily burned. Non-combustibles, (metallic objects, etc.) are flame-sterilized and removed with the ashes.

For more detailed information, consult
Sweet's (1924) Pages 2536-37, or write
KERNER INCINERATOR COMPANY
115 CHESTNUT STREET
MILWAUKEE, WIS.
The One Biggest Feature of electric refrigeration

When you tell a buyer that any appliance will last for years, he naturally asks for proof.

There is only one kind of proof that proves, and Kelvinator alone offers that.

Kelvinator points to installations that have been efficiently doing their work for years. These installations are in practically every community and your statements can be verified by the prospect.

Find, if you can, any stronger selling feature than that of Kelvinator's past performance.

Kelvinator Corporation, 2035 West Fort Street, Detroit, Michigan
Kelvinator of Canada, Ltd., 11 Temperance Street, Toronto

Kelvinator
The Oldest Domestic Electric Refrigeration
To the Men Who Plan and Build Apartment Buildings:

Do you know that a gas range equipped with the Lorain Oven Heat Regulator represents the highest achievement yet reached in the development of an appliance for the perfect cooking of foods?

Do you know that any kitchen today that has a gas range without a Lorain Self-Regulating Oven cannot be said to have the most modern cookery equipment?

Do you know that in thousands upon thousands of homes and apartments, and in hundreds of churches, hospitals, fraternal organization structures and other types of high-grade buildings, gas ranges equipped with Lorain are regarded as ideal cookery appliances?

Today, American housewives in general look upon a Lorain-equipped Stove as a real home necessity because it produces ideal results in Cookery by the modern Time and Temperature Method. The housewives that use this wonderful Lorain Self-Regulating Oven never experience an "unlucky" baking-day, for everything cooked or baked in the oven turns out uniformly perfect, every time.

They know that Lorain makes it possible to cook a Whole Meal in the oven at one time without any attention on their part—in fact, they can be miles away while the meal is cooking, and return hours later to find it deliciously done and ready to be placed on the table.

They also know that Lorain enables them to do their Canning in the oven, better, quicker and easier than by any other process.

Lorain-equipped Gas Ranges are used in over 1100 leading schools and universities for teaching the Science of Cookery. They are used in the research and experimental kitchens of dozens of manufacturers of nationally-known food products.

Catalogs and data of special interest to architects gladly sent upon request. For specific information see 19th Edition Sweet's Architectural Catalog.

These famous gas stoves are equipped with the Lorain Oven Heat Regulator: Reliable, Clark Jewel, Dangler, Direct Action, New Process and Quick Meal.

AMERICAN STOVE COMPANY, 444 Chouteau Avenue, St. Louis, Mo.

Largest Makers of Gas Ranges in the World

LORAIN OVEN HEAT REGULATOR
Double Protection Against Accident Where Needed

ASH removal must be accident proof. The greatest invitation to accidents is an open hoistway. G&G ash removal equipment insures complete protection to the hoistway.

Where the sidewalk opening is away from the side of the building, thus creating an opening on the fourth side of the hoist usually closed by the building wall, an extra set of G&G Spring Guard Gates can be provided, as is shown in the illustration.

It is the safety feature, plus the dependable and economical advantages of G&G ash removal equipment, that makes it so desirable to remove ashes the G&G way.

May we send you a new catalog illustrating various models so you may get a better conception of the reasons why so many buildings of all types use G&G equipment?

GILLIS & GEOGHEGAN
544 West Broadway New York
How To Save Space When Planning Kitchens
For Apartment Buildings And Residences

A Practical Reference Booklet of Plans and Facts
—Based on the Experience of Leading Architects
—Especially Planned and Written for Architects by an Authority in the

Service Department of Architectural Forum

A Few Outstanding Features
1. Explains and illustrates kitchen plans, well known operations, designed by noted architects.
2. Gives reduced scale drawings ready for immediate tracing.
3. Affords 8 complete Plan and Specification Data sheets.
4. Permits shifting the range on a plan to find best location.
5. Makes possible maximum economy in space with maximum convenience for housewives and cooks.

As many architects have learned by experience, and others are discovering every day, "an efficient kitchen is planned around the gas range." The kitchen is the "engine room" of the home, where the average woman spends at least 76 per cent. of her waking hours.

This Vulcan service booklet will enable you to give exceptional service to landlord, builder and tenant—with less work spent in your office and drafting rooms.

It is free to architects and builders only. Kindly ask for it on your letterhead. We'll gladly send it, promptly.

STANDARD GAS EQUIPMENT CORPORATION
Vulcan Division—Successor to
Wm. M. Crane Co., 18-20 E. 41st St., New York
Makers of

Smoothtop Gas Ranges
Satisfactory to both client and architect

An important part of our work is the fashioning of special lamps and standards from the architect's drawings with such careful holding to specifications and estimate that the finished product is invariably approved by both architect and client.

The Smyser-Royer Catalog "H" is a valuable reference on exterior Lighting Fixtures. It is sent to recognized architects on request.

LAMP POSTS—LANTERNS—BRACKETS
SMYSER-ROYER
Main Office and Works—York, Pa.
Philadelphia Office, 1000 Sansom St.

In Case You Have Not Thought of Frink Lighting In Connection With Hotels

STATLER knows what his guests want and he knows what his staff wants to enable them to give his guests what they want.

Imagine, for instance, a Greeter welcoming a guest with the stabbing light from some exposed lighting fixture shining in his eyes.

To avoid that, Frink reflectors, concealed in the moulding of the office screen, are used.

They also give perfect light without chance of eye strain to clerks at work within.

Then, to avoid confusion and embarrassment to guests, Polar altitude directional signs are freely used. These are but two of the instances where Frink can be of service to hotels.

Of the others, such as cove and novel dining room lighting one of our engineers would be glad to tell you. Write us today.

I.P. FRINK, Inc.
24th Street and 10th Ave., New York
Representatives in Principal Cities
A Thing of Beauty
Is a Joy Forever:
—Keats

IN this splendid age where nothing of wealth is too great to be expended in the erection of magnificent and luxurious buildings for every branch of commerce:

Where offices, banks, cathedrals, art galleries, and schools are being built all over the land with lavishness and progressive development, architects of note specify lighting equipment by Guth.

They have long since learned that Beauty in distinctive designs, without overlooking the importance of correct illumination, is the ideal of every member of the Guth organization.

Our engineering and designing departments with their combined skill and ingenuity are ever at your disposal for the solution of your problems. We welcome your request for assistance. No obligation of course.

The Edwin F. Guth Company
Designers-Engineers-Manufacturers

Lighting Equipment

ST. LOUIS U. S. A.

Formerly the St. Louis Brass Mfg. Co., and the Brascolite Company
Branch Offices (Sales and Service) in Principal Cities
THE ULTIMATE
In Architectural Illumination

As announced in last month’s issue of the Architectural Forum, Holophane—the world’s most efficient lighting product—is now available in beautiful period fixtures, the work of master craftsmen in metal.

These new luminaires cover a wide range of lighting requirements—for banks, churches, hotels, schools, offices, stores and other types of buildings.

Two of the many designs are here illustrated.

A portfolio of sketches showing some 20 other fixtures is now being prepared for architects’ libraries. The edition is limited; but if you will write us on your business letterhead we shall send you a copy, without obligation, as soon as ready.

HOLOPHANE GLASS COMPANY
Canadian Pacific Building, New York City
Works: Newark, Ohio
Paris Toronto London

THE STANDARD R-r
(Holophane Reflector-Refractor)
This is one of the many Holophane units developed in scientific prismatic glass construction, which controls the light accurately. Also shown is the characteristic light distribution curve of the Holophane R-r. Adaptations of this unit are illustrated on the right hand page.
THE ADAPTATIONS
(Based on R-r Unit)

With Holophane R-r (Reflector Refractor) as the core and carefully detailed designs as a guide, skilled craftsmen work in metal beautiful period fixtures such as the above.
All over the U.S.
Inter-Phones are on the job

Some more well-known users of Inter-Phones
F. W. Woolworth Co., Oklahoma City, Okla.
State Industrial School, Golden, Colo.
Southern Power Co., Charlotte, N. C.
General Electric Co., Morton and Greenwich Sts.,
New York City
Equitable Trust Co., 220 Broadway, New York City
New York State Gas & Electric Co., Oneonta, N. Y.
Better Sox Knitting Co., Port Atkinson, Wis.
Milwaukee County Agricultural School, Wauwatosa,
Wis.
Salem High School, Salem, Oregon
American Railway Express Co., San Francisco, Cal.
Duluth National Bank, Duluth, Minn.
Utah Light & Traction Co., Salt Lake City, Utah

Western Electric
OFFICES IN FORTY-NINE PRINCIPAL CITIES

Improving a Product
Already Perfect

FROM over fifty thousand of our door closers in
daily use, all over the country, we have never had
a serious complaint. For all practical purposes, the
ES door closer is a perfect piece of mechanism.
Yet our research department has found a way to
improve them. This without cost to you.
A change in the spring construction makes the opening
easier and closing faster. The bearing surface at both
ends of the improved ES closer has been made larger
by over 200%; thus stronger. A malleable iron base at
the bottom replaces one of cast iron and a steel yoke
on top of the piston rod makes it still stronger.
Write us today for full particulars.

ELEVATOR SUPPLIES COMPANY, Inc.
HOBOKEN, N. J.
Main Office and Works
1315 WILLOW AVENUE, HOBOKEN, N. J.

BRANCH OFFICES
Cleveland 1930 Walnut Ave. Chicago 111 South Jefferson St.
San Francisco 180 Fifth St. Philadelphia 1714 Ludlow St.
Los Angeles 1130 S. Hope St. Dallas, Texas 454 S. Akard St.
There are less moving
parts in E-S Closers
than any other type.
They can also be refitted
without removing.

ES

THE ARCHITECTURAL FORUM
December, 1924
The **GOLD STAR Switch** at Home

**ARCHITECTS** of buildings like these, create the right environment for the **GOLD STAR Switch**. Without thought of switches, you assemble the elements of Quality. You work out a harmony of design, appointments and fixtures. Your plan carries through the interior detail to the wiring devices. And before you take risks with the fitness of things, you have specified "Gold Star" Switches.

---

**Your "Gold Star" Jobs**

On east coast and west are famous structures—the homes of Gold Star switches. For architects, all, have their "gold star" jobs, where beauty, service, and permanence should show in the switches. Of all the de luxe touches in a room, what so tangible as the owner's touch on the push-button of a Gold Star switch! There, for sure, is fine construction felt.

---

**The Architect's Handbook**

Your handiest reference to the Gold Star switch and data for specifying, is "The Architect's Handbook of H&H Wiring Devices." Besides data, the "Handbook" presents many fine buildings where H&H Switches support fine architecture. Not all of them Gold Star switches, but all good switches that grace the job whatever the class of requirements.

---

Give us the pleasure of giving you the "Handbook," by telling us how to address it.

---

The **HART & HEGEMAN Mfg. Co. HARTFORD, CONN.**
A Few Banner Finish Jobs---

1. New Capital Hotel, Frankfort, Ky.
2. Fraternity Club Building, New York City
3. Reakirt Bldg., Cincinnati, Ohio
4. Urbana-Lincoln Hotel, Urbana, Ill.
5. Office Building, Maiden Lane & William St., New York City
6. Third Church of Christ, Scientist, New York City
7. Edgewater Beach Hotel, Chicago, Ill.
8. New Empire Hotel, New York City
9. New Jersey State Normal School, Glassboro, N. J.
The End of a Perfect Year

It's nothing more than a little problem in arithmetic to measure a year by hours, by days, or by months.

By simple addition you merely arrive at a collection of numerals.

But when you measure that year by the things you have done in the hours or days or months it gave you, there is found an answer that serves to point out your shortcomings or to spur you on to greater success.

By the latter method, we find that 1924 is the end of a perfect year for Banner Finish.

Hundreds of testimonials from plasterers tell us that Banner is made as they want it.

Contractors point to a saving in time and material on every Banner Finish Job.

And, by specifying Banner in countless structures of all types and sizes throughout the country, leading American architects proved our claim that a finishing lime must not only make the plasterer's work easier and cut costs for the contractor but prove, under most rigid tests, that it will stay put.

It is the aim of Banner Finish to maintain this record during 1925.

National Mortar & Supply Company
Federal Reserve Building
Pittsburgh, Pa.

Banner

"Easy to spread—hard to beat"
HAVE it off—yes. But chip, peel or rub it off—never! The coating is what counts and Economy Rigid Conduit Coating is tough, elastic, adhesive enamel—baked on!

Made from the same high grade Spellerized tubing as the famous Sherarduct, this favorite Black Enameled Conduit means Economy in fact as well as in name.

Economy threads are clean threads—cleaned before shipment. No rethreading ever necessary.

National Metal Molding Company

WORLD'S LARGEST PRODUCERS OF ELECTRICAL CONDUITS AND FITTINGS

1236 Fulton Building, Pittsburgh, Pa.
Represented in All Principal Cities
SPECIFYING @ Panelboards expresses experienced judgment, for they serve better than others at lower cost. Furthermore, they are an index to the quality of the entire wiring job.

Your own reaction in seeing @ Panelboards in a new building is that of all architects, contractors and most owners—@ Panelboards are the sign of a better wiring job.

@ Safety Type Panelboards are made up of standardized sections, each panelboard shipped completely assembled, certain of fitting an @ Standardized Steel Cabinet. Plug and Cartridge Fuse Types, with or without controlled branches.

Complete catalog, estimates and any service data desired gladly furnished without obligation.

Frank Adam
ELECTRIC COMPANY
ST. LOUIS

Detroit
Cincinnati
New-Orleans
Denver
Minneapolis
Philadelphia
Kansas City
New York
Los Angeles
San Francisco
Winnipeg, Canada
Indianapolis
Pittsburgh
Chicago
Dallas
Atmosphere

The old door-way, the arch, the balcony, the wrought-iron lantern—all make atmosphere.

The modern church, the office building, or the theatre, gain atmosphere by careful designs and an exacting selection of appointments.

Serenity in the church; efficiency in the office; awe and wonder in the theatre—that is the kind of atmosphere CURTIS LIGHTING with X-Ray Reflectors lends.

Curtis Lighting is mobile—it is versatile. The designs are excellent. Workmanship beyond question.

Curtis Lighting engineers are trained to understand—atmosphere.

CURTIS LIGHTING, INC.

A Grouping of
National X-Ray Reflector Co.
X-Ray Reflector Co. of N. Y., Inc.
Luminaire Studios, Inc.

1116 West Jackson Boulevard
CHICAGO

31 W. Forty-Sixth St.
New York

Merchants Nat. Bank Bldg.
Los Angeles
Recognizing the diversity of both the architectural and the electrical requirements of modern building structures, the aim of the General Electric Company has been to design panelboards flexibly adapted to meet any reasonable requirements which are presented.

In the G-E panelboards are combined the result of extensive research, wide experience, careful selection of materials, modern manufacturing methods and accurate assembly.

Compact in form, neat in appearance, conservative in rating, G-E panelboards combine the ultimate in effective control of electric circuits with maximum safety for the operator. They are designed and built to fulfill the requirements of the Electric Safety and National Electric Codes.

Reference Descriptive sheet 67900-A

GENERAL ELECTRIC
GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y., SALES OFFICES IN ALL LARGE CITIES
Whether for an office building, hotel, church or home, Hoffman "Controlled Heat" is equally effective. It meets the strictest requirements of a heating system.

Hoffman "Controlled Heat" insures heat comfort on the coldest days, and yet is adaptable to outside weather changes. The temperature of each room can be regulated easily and accurately by the Hoffman Modulating Valve.

The Hoffman "Differential Loop," with no moving parts, absolutely prevents a burned out boiler—compared with mechanical appliances for the same purpose it is extremely simple.

Hoffman Modulating and Return Line Valves, with the other required specialties make "Controlled Heat" one of the greatest forward steps in heating science. It is economical and reliable. It is flexible and silent. There is nothing more that can be demanded of a heating system.

A vast amount of valuable information on heating problems is to be found in the Hoffman "Data Book." We shall be pleased to send you a copy on request.

Hoffman Specialty Company, Inc
Dept. C, 512 Fifth Avenue,
New York, N. Y.

Hoffman Controlled Heat
Reinforced Stucco is as strong as Gibraltar and as durable as the Pyramids—because this man-made stone is stronger and more durable, thickness for thickness, than nature’s stone.

Reinforced Stucco can be quickly and economically fashioned into designs and shapes which, in sheer beauty and architectural effect, rival sculptured stone or marble.

But the outstanding advantage of Reinforced Stucco is ECONOMY. Reinforced Stucco costs very little, if any, more than even standard wooden frame construction: Reinforced Stucco requires no maintenance, whereas the cost of painting a frame building amounts to as much, if not more, in 40 years, than the entire original cost of the building.

Even as primitive man practiced the principle of reinforcement by embedding reinforcing twigs in the clay of which he built his home—

So we, today, embed infinitely stronger reinforcing wires (or fabric) in Stucco, in order to make it stronger and permanently weather-tight—in order to “bind” the Stucco together, and to the building, and thereby prevent cracking and falling.

Before you build or remodel, write for a copy of our free book—

“Building a Permanent Home”

NATIONAL STEEL FABRIC COMPANY
(BURRENTARY OF PITTSBURGH STEEL CO.)
710 Union Trust Building, Pittsburgh, Pa.

OFFICES: Atlanta Cincinnati Chicago Cleveland Dallas Denver
Detroit Houston Los Angeles New York City Philadelphia
San Francisco St. Louis

STOCKS: Chicago Houston Los Angeles New York Pittsburgh
San Francisco.

is a base and reinforcement for stucco and plaster—it combines 6 building materials into 1; namely, sheathing, building paper, lath, “furring,” reinforcement and nails.

It is applied either direct to studs or over sheathing or insulation.

When You Build REMEMBER these Things

REINFORCED STUCCO HAS ALL OF THESE CHARACTERISTICS INDIVIDUALLY AND AS A WHOLE
December, 1924

A MILLION WINDOWS

Equipped Yearly

with AMERICAN SASH CHAIN

During 1923 a million windows were equipped with smooth running American Sash Chain. The extensive use of this chain last year is manifestly a tribute to the service it is rendering in prominent structures throughout the world.

AMERICAN CHAIN COMPANY
Incorporated
BRIDGEPORT, CONNECTICUT

In Canada
DOMINION CHAIN CO., LTD.
Niagara Falls, Ont.

WALLACE & TIERNAN
NEWARK, NEW JERSEY

Mineral Wool for Building

Mineral Wool has superseded all other materials used for similar building purposes because it does "a great work at little expense." A house lined with Mineral Wool has an indestructible, fire-proof and vermin-proof guard; it protects the entire household. In the winter time it keeps the cold air out, facilitating proper heating and economy in fuel. In the summer it keeps the heat out.

This material, being of fibrous, inelastic composition, acts as a deadener and muffles all sound. It is considered the best insulator material on the market, making it a perfect refrigerating machine.

Mineral Wool makes life-long friends of all its users. If you are skeptical as to its power, let us demonstrate. We can prove all claims. Write us today.

U. S. MINERAL WOOL CO.
280 Madison Avenue, New York

SWIMMING POOL SANITATION

The W & T Process of Chlorination, used by over 200 Pools, is the least expensive and most efficient method of Swimming Pool Sterilization.

A sterilized water cannot cause disease.

Technical Publication No. 21, containing full data and specifications will be mailed on request

WALLACE & TIERNAN
COMPANY INCORPORATED
NEWARK, NEW JERSEY

NEW YORK, CHICAGO, PITTSBURGH, SAN FRANCISCO, KANSAS CITY
ST. LOUIS, SEATTLE, KNOXVILLE, DALLAS, MINNEAPOLIS
WALLACE & TIERNAN, LTD., TORONTO

SWIMMING POOL SANITATION

Section of Outside Wall of House, Showing Wool Between Studding

Siding

Section of Sound-Proof and Fire-Proof Partition
There’s no substitute for Health

It’s more precious than a King’s ransom. Good health and keen minds depend upon the air we breathe.

That’s why Architects and Educators everywhere are properly ventilating their schools with Univent ventilation.

The Univent system brings the fresh out-door air directly into the classroom — cleans and warms it — and delivers it silently and without drafts to every part of the classroom.

And now—an even greater Univent

The trend of progress is toward simplicity. Years of experimental research has made possible the building of a Univent that occupies no more space than an ordinary radiator.

It is extremely simple in operation and accessible for cleaning and inspection.

The low temperature, high capacity, non-corrosive copper radiator has sufficient capacity to warm the incoming air from zero to 110 degrees. It will last a lifetime.

An efficient, cleanable filter for cleaning the air of dust and soot particles may be furnished when required.

A low speed fan and motor with a capacity for handling 81,000 cu. ft. of fresh air per hour, silently and economically, is another distinct Univent feature.

If you are interested in good ventilation send for the latest copy of Univent Ventilation. No obligation.
The Fifth Avenue Hospital, being modern in every respect, uses the Kny-Scheerer Operating Room Light as well as other Kny-Scheerer equipment.

Constant, unfailing service — perfect performance — these must be accomplished by every piece of equipment — especially in the Operating Room.

The Kny-Scheerer Operating Room Light gives uninterrupted service under all conditions. The supplementary gas light is a positive protection against any interruption when fuses blow out or the electrical current is shut off. The safety of the patient, the reputation of the surgeon and the hospital, require this double protection. With a combination of electricity and of gas a near daylight is produced — shadowless, strong and steady. Delicate operations can best be performed under this illumination. Send for our descriptive literature, describing the Light in detail.

Architects interested in hospital planning may have valuable assistance from the Engineering Service Department of the Kny-Scheerer Corporation without any obligation.

During a quarter century of experience in equipping Hospitals, we have often assisted the Architect in his desire to effect substantial economies in equipment and arrangement.

To Meet the Demands of Modern Surgery

Constant, unfailing service — perfect performance — these must be accomplished by every piece of equipment — especially in the Operating Room.

The Kny-Scheerer Operating Room Light gives uninterrupted service under all conditions. The supplementary gas light is a positive protection against any interruption when fuses blow out or the electrical current is shut off. The safety of the patient, the reputation of the surgeon and the hospital, require this double protection. With a combination of electricity and of gas a near daylight is produced — shadowless, strong and steady. Delicate operations can best be performed under this illumination. Send for our descriptive literature, describing the Light in detail.

Architects interested in hospital planning may have valuable assistance from the Engineering Service Department of the Kny-Scheerer Corporation without any obligation.

During a quarter century of experience in equipping Hospitals, we have often assisted the Architect in his desire to effect substantial economies in equipment and arrangement.

The KNY-SCHEERER Corp.

119 Seventh Avenue Dept. L. New York, N.Y.
No. 3 of a series of advertisements featuring prominent laundry installations

—and at the new Atlanta-Biltmore

One of the outstanding events in the hotel world during 1924 was the opening of the new Atlanta-Biltmore Hotel in Atlanta, Georgia—the finest link in the Bowman chain of super-hotels. And of course the management included a completely “American” equipped laundry as a part of the “back-of-the-scenes” service. This Atlanta-Biltmore laundry is one of the finest equipped and most efficient hotel plants in the entire South. The equipment will handle from 1,000 to 1,500 pieces of flat work per hour—and in addition there is an entirely separate department for laundering guests’ apparel. Through this feature much of the laundry overhead is turned into profit.

A card will bring full details of the installations featured in this and other advertisements of this series.

At your service—a corps of laundry specialists

The American Laundry Machinery Company maintains a corps of engineers who have gained wide experience in planning and equipping most of this country’s foremost hotel, commercial and institutional laundries.

If you have any questions pertaining to modern laundry practice you will find consultation with these specialists advantageous. This service is gladly offered you without any obligation whatever.

The American Laundry Machinery Company
Cincinnati, Ohio

Norwood Station

THE CANADIAN LAUNDRY MACHINERY CO., Limited
47-93 Sterling Road, Toronto, Ont., Canada

Agents: BRITISH-AMERICAN LAUNDRY MACHINERY CO., Limited
16-18 Victoria St., London, S. W. 1, England
In Old New England

Sturtevant Stationary Cleaner in Boston's Copley Plaza

Here, this installation is giving perfect satisfaction with practically no cost for maintenance.

Architects! Specify Sturtevant Stationary Suction Sweeping Systems for the buildings you are now planning.

By so doing you give your clients the most durable suction sweeping systems on the market today. And you have the assurance and guarantee of Sturtevant that the cleaner will meet with the entire satisfaction of your clients.

We say: "Our cleaner is superior to all others." Ask us to prove it.

B. F. STURTEVANT COMPANY

Plants Located in
Camden, N. J. Berkeley, Cal. Galt, Ontario

Sales engineering offices and direct representatives in every commercial center of the world
Save the Window and Wall Space

Every woman objects to radiators because they interfere with her scheme of interior decoration. They always happen to be just where she would like to place a chair or table.

By using the Kelsey Warm Air Generator, you can give your client every advantage in the way of heating equipment; and yet conserve the wall space. The warm air may be brought in through registers in out-of-the-way places.

There are many other advantages in using the Kelsey Warm Air Generator, such as a continuous supply of fresh, warm air, with just enough moisture, supplied by the automatic humidifier, to make 70° feel like 72°. Kelsey fuel consumption is extremely low, the heater is the heaviest on the market and built for a lifetime of efficient service. It is totally unlike any other heater, and there are scientific reasons for its effective and economical performance.

Our Engineering Department offers the fullest cooperation to the architect, and will furnish detailed plans and specifications for each installation.


The Kelsey
WARM AIR GENERATOR

Sales Offices
Boston and New York

Dealers
Principal Cities

251 James Street, Syracuse, N. Y.
A Monograph of the Work of Mellor, Meigs & Howe

With Preface by Owen Wister

AMERICAN architecture includes no domestic work more distinctive and full of character than that of these Philadelphia architects, and few designers are as able to bestow upon a building the appearance of spacious, informal dignity desired today and expressed in the work of this firm.

Here there is presented in one volume a review of most of their best work. It includes large half-tone cuts from original photographs of residences, chiefly country or suburban, of other domestic buildings, farm structures, a few clubs, college or fraternity buildings, and a number of structures of other kinds. Most of these items are accompanied by plans and other drawings, sections, and details of interior trim. The materials used in these buildings are wood, stone, brick, stucco, and combinations of all these, and the structures illustrated are of many widely different architectural styles, each interpreted with that taste, skill and close attention to detail for which the firm is well known.

Many of the items presented here include loggias, terraces, gardens and other out-of-door work which is developed with the care and thought which characterize the buildings themselves, and full plans of grounds and gardens accompany most of the illustrations. This is a volume which should be included in the working library of every architect and landscape architect.

212 pages; 12 x 16 inches; lavishly illustrated with half-tone plates of exteriors and interiors; printed on heavy coated paper, and bound in cloth.

Price $20

ROGERS AND MANSON COMPANY
383 Madison Avenue, New York
RUUD AUTOMATIC GAS WATER HEATERS

A Special RUUD Offer To Architects

During November and December

ARCHITECTS can obtain an especially attractive price on a Ruud Automatic Gas Water Heater for use in their own homes. An unusual opportunity to equip your home with Ruud Perfect Hot Water Service. Visit or phone the nearest RUUD Branch or write Department C.

The Ruud Specification Folder

A source of hot water information — complete — convenient — accessible. It fits your file—serves every possible hot water specification. A copy mailed FREE upon request.

Ruud Manufacturing Company
Factories in Pittsburgh, Pa., and Toronto, Ont.

BRANCH OFFICES IN ALL LARGE CITIES
Simplicity is its big advantage

The simplicity of the Young Centrifugal Vacuum and Boiler Feed Pump is clearly shown in the illustration above. The line drawing reproduced below also reveals the simplicity of the Pump when equipped with automatic vacuum control and with float controlled accumulator tank. This latter installation is particularly desirable where there is blast or other radiation at a low level that should be kept free from condensation.

There is no question of the superiority of Young Pumps for vacuum and low pressure boiler feed work. The fact that these pumps are the acme of simplicity enables an ordinary fireman to take care of their operation with ease.

YOUNG PUMP COMPANY
230 East Ohio Street, Chicago
Factory: MICHIGAN CITY, INDIANA
TWENTY small closed cells are more efficient as a heating-pipe insulation than one large open cell.

Johns-Manville Improved Asbestocel has over twenty times the number of air cells per 3 foot section than an equal length of ordinary pipe covering. Cross corrugations running around the section break up the lengthwise corrugations into small, closed, isolated cells. In ordinary pipe covering the corrugations extend the entire length of the section and are open at the ends. Through them air may circulate freely.

Because of this greater number of small cells, Improved Asbestocel saves more heat and more coal. And it lasts longer because added corrugations give increased strength.

Specify Improved Asbestocel. You can always identify it by the red band at each end of every section.

JOHNS-MANVILLE Incorporated, 292 Madison Avenue at 41st St., New York City
Branches in 62 Large Cities
For Canada: Canadian Johns-Manville Co., Ltd., Toronto
ONE of the landmarks of Chicago’s famous “North Shore” is the Dunhamized residential Lake Shore Drive Hotel which is located at No. 181 on The Drive. This nationally known hotel is beautifully situated on the shores of Lake Michigan, adjoining picturesque Lincoln Park, and because of its appointments and cuisine is one of the city’s social centres.

The Same Fire Warms the Building and Heats Hot Water

Economy of operation is the by-word in these days of high fuel cost, so if you specify EXCELSO, the heater that supplies unlimited quantities of hot water without cost, by utilizing heating plant fire, it is sure to delight your clients.

With this feature of economy go other EXCELSO advantages—no matter how insistent the demand, EXCELSO keeps the tank continually filled; a simple and thorough construction insures dependability and durability of service; the time and effort of a separate hot water heater fire is eliminated. No building can be quite modern without the very efficient and very economical EXCELSO water heater.

Tell us the type of building and heating plant, and we shall be glad to recommend the proper model and size of EXCELSO, together with other details in which you will be interested.

EXCELSO SPECIALTY WORKS, Inc.
369 EXCELSO BLDG. BUFFALO, N. Y.

WINTERTIME tests the real worth of a ventilator. Never have we had a complaint of a snow-clogged

“GLOBE” VENTILATOR

“GLOBE” Ventilators are constructed to give perfect ventilation at minimum expense and they require no attention whatever.

GLOBE VENTILATOR CO.
Troy, N.Y.
What little more does it mean to add the cost of the Johnson Pneumatic System of Temperature Regulation to the already fine home, or office structure. And what greatly more it means to secure the refinements which The Johnson system gives. On the one hand, the cost will be returned the first three years in the saving of fuel. On the other hand, once installed and the benefits derived, its worth becomes invaluable.

JOHNSON SERVICE COMPANY, MILWAUKEE

AUTOMATIC TEMPERATURE REGULATION FOR 38 YEARS   TWENTY-EIGHT BRANCHES UNITED STATES AND CANADA
HOTEL ROOSEVELT

United Hotels Company of America, Owners
George B. Post & Sons, Architects

Cleaning Requirements for Hotels

NONE of the mechanical equipment used in earlier United Hotels passed unchallenged for the new twelve million dollar Hotel Roosevelt. Everything was selected to meet the highest requirements of modern hotel science.

Spencer Central Cleaning Systems under this exacting test were not found wanting. Again our installations keep pace with the growing list of United properties.

Architects planning hotels are invited to investigate the Spencer System, which is the recognized standard for fine buildings of all types.

SPENCER TURBINE CO.
Hartford, Conn.

SPENCER CENTRAL CLEANING SYSTEMS

Thatcher “Staggered Fire Travel” puts the smoke and gases to work

BEFORE the valuable hot gases and smoke in a Thatcher Round Boiler reach the chimney they must pass back and forth over the large heating surfaces many times. This scientific “Staggered Fire Travel” compels the smoke and gases to give up their important heat units, instead of allowing them to escape up the chimney.

This arrangement also provides additional heating surface which cuts down on the amount of coal necessary to keep the house comfortable in all weathers.

Thatcher Round Boilers are backed by 74 years practical manufacturing experience.

Write for illustrated Boiler Catalog giving full details, specifications and ratings of all Thatcher Boilers. A valuable hand book and reference in the drafting room.

THATCHER HEATERS & RANGES
THATCHER FURNACE COMPANY
Makers of GOOD Heaters and Ranges Since 1850

Cross section view of Thatcher Round Boiler showing how smoke and gases are utilized before going up chimney.
A factor of even greater importance than our broad guarantee is the 35 years of honest, conscientious manufacture back of every Capitol Boiler.

In all these years there has never been the slightest deviation from the rigid policy of producing only products of the highest quality. It is extremely gratifying to know that in both public and private buildings, wherever Capitol Boilers are used, they have unfailingly demonstrated that quality.

Architects and heating contractors specify them with absolute confidence. They know that for utter dependability and for extracting the full value from fuel there is nothing superior in the entire heating industry.

UNITED STATES RADIATOR CORPORATION
General Offices, Detroit, Michigan

Branch and Sales Offices

Boston
Springfield, Mass.
Portland, Me.
Providence, R. I.
New York
Brooklyn

Harrison, N. J.
Philadelphia
Baltimore
Buffalo
Pittsburgh

Cleveland
Columbus
Cincinnati
Detroit
Chicago

Milwaukee
Indianapolis
Louisville
St. Paul
St. Louis

Kansas City
Des Moines
Omaha
Denver
Seattle
Portland, Ore.
The Cincinnati & Suburban Bell Telephone Company buildings now heated with Bryant Gas Boilers

A uniform temperature in all kinds of weather, without labor or attention, is now maintained in all these buildings. Our engineering department will gladly cooperate with you in solving any heating problem.

THE BRYANT HEATER & MFG. COMPANY
962 E. 72nd St., Cleveland, Ohio
Branch Offices in Principal Cities

BRYANT automatic
Steam, Hot Water and Vapor
GAS HEATING

SILENCE!

Wherever absolute quietness is desirable, the discerning architect or engineer selects "Chicago" Pumps. He knows that he can depend upon them to operate silently and faithfully.

That is why they were selected for the Allerton Club, at Chicago; the Walker Hotel, at Washington; the Equitable Life Building, at Des Moines; the Nicollet Hotel, at Minneapolis; and many other prominent buildings in every section of the country.

You would like to see a "Chicago" outfit at work. You would appreciate the utter lack of vibration, and the ease with which the pump carries its load. You could stand close enough to touch it with your hand, and you would hardly know it was running.

To make pumps like this, it is necessary that we select the finest materials and build them with meticulous care into scientifically designed machines.

Write for our Catalog. It contains interesting and valuable information

Boiler Feed House Supply Circulating Pneumatic System

Chicago Pump Company
2316 Wolfram St., Chicago, Ill.

Bilge Sewage Condensation Vacuum
How we know it's smokeless

We know that the Ideal Smokeless Boiler is truly smokeless because it proves so under the critical eyes of the Institute of Thermal Research. Every Ideal Boiler before shipment, must meet conditions far more exacting than any it will encounter in actual service.

Ringelman Chart of a recent test run on an Ideal Smokeless Boiler is reproduced below. The boiler under test was a 13-section, 36" Smokeless, operating at 80% of rating. The fuel was particularly smoky—Island Creek Bituminous—and analyzing as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile Matter</td>
<td>36.66</td>
</tr>
<tr>
<td>Fixed Carbon</td>
<td>56.89</td>
</tr>
<tr>
<td>Ash</td>
<td>6.45</td>
</tr>
<tr>
<td>Sulphur</td>
<td>1.66</td>
</tr>
<tr>
<td>B.T.U.</td>
<td>14330</td>
</tr>
</tbody>
</table>

At 9:10 fire was leveled with a hoe, incident to developing one and one-half smoke, which subsided to zero in one and one-half minutes.

At 9:15 a charge of fuel was fired, developing number one smoke, which dropped to one-half in three minutes and continued one-half for two additional minutes, dropping to zero one minute thereafter.

**Total smoking period during firing: six minutes**

or practically smokeless. No attention thereafter until stoked at 9:50, when it instantly developed number three for a flash, subsiding immediately to zero four minutes thereafter, etc.

The time of greatest smoke is at any stoking period. The time of least smoke is at any firing period. Between these two periods there is no smoke.

The Ideal Smokeless Boiler meets the requirements of every smoke ordinance; it is doing much for the cause of cleaner cities and greater fuel economy. For complete information write Dept.T-266.

**AMERICAN RADIATOR COMPANY**

Ideal Boilers and American Radiators for every heating need

Dept.T-266, 1803 Elmwood Ave., Buffalo, N.Y.

Branches in all principal cities
Contractor and Plumber
Are Forgotten—But They
Remember You

From the owner's viewpoint, every instance of
fault or failure in a building or home of your
design is a direct reflection upon your reputation
as an architect.

Seldom is the owner justified in laying such
complaints at your door, but because he has
forgotten those who actually fabricated his
property, you are held responsible.

The annoyance and embarrassment resulting
from defective and corroded piping is avoided
by many architects who have taken the pains
to "sell" their clients the long-life Wrought
Iron Pipe marked "Reading."

READING IRON COMPANY
Reading, Penna.

World's Largest Manufacturers of Genuine Wrought Iron Pipe

- Boston       Baltimore       Chicago       Tulsa
- New York     Pittsburgh      Seattle       Houston
- Philadelphia Cincinnati     Los Angeles   St. Louis

READING PIPE
GENUINE WROUGHT IRON
Service and Permanence

were the ideals aimed for in the erection of the Postum Office Building. It will be significant to those who decide upon the piping requirements for similar installations that the major requirements of this building were met with "NATIONAL"—The Recognized Standard of Wrought Pipe. "NATIONAL" Bulletin No. 25 contains useful data on pipe for building purposes. A copy will be sent upon request.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

District Sales Offices in the Larger Cities
Brass pipe would have saved this hotel $25,000

That "The shoemaker's children go barefoot" is sometimes a true saying, is witnessed by the case of the Hotel Elton right here in Waterbury. Although Waterbury is known as the "Brass Center of the World", iron pipe was used for the Hotel Elton plumbing. And of course the usual aftermath of corrosion, leakage, annoyance and expense was the result.

"We would have saved over $25,000 if we had only used brass pipe", said Mr. Almon C. Judd, manager and owner. "One section of our pipe was renewed five times within fifteen years. Iron pipe has kept the Elton plumbing in a continual state of upset. It isn't the first cost of the pipe that counts; it's the final expense".

CHASE Brass Pipe is the pipe of lowest "final expense". Every length is stamped with the Chase name and the Chase Diamond trademark — the stamp of guaranteed quality.

CHASE METAL WORKS
Division of Chase Companies Inc.
WATERBURY CONNECTICUT

Member Copper and Brass Research Association
Spending a Dollar to Save Ten

The durability of a plumbing, heating or power system depends, above all, on the pipe. Year in and year out, corrosion is viciously attacking the pipe metal from within. The smallest leak spells expense and damage tenfold greater than the cost of the pipe.

Byers pipe is made of genuine old-fashioned wrought iron, incorporating layer upon layer of microscopic silicate bands which protect the metal from corrosion. These barriers against rust and destruction, while entirely absent in cheaper pipe, are responsible for the long lasting qualities which have made Byers pipe famous. In every city, you may see buildings in which Byers pipe has given a lifetime of service and is still in good condition.

When you build, make sure that Byers pipe is installed in the plumbing, heating and other pipe systems. Every extra dollar spent for Byers pipe, saves ten dollars in future repairs.

"On the Trail of Byers Pipe" contains illustrations of well-known old buildings in which Byers pipe was installed upwards of 30 and 40 years ago. Copy free on request

A. M. BYERS COMPANY, PITTSBURGH, PA., Established 1864

New York Philadelphia Boston Chicago Houston

Distributors in all Jobbing Centers

Look for the Name and Year rolled in every length
Two Data Books

FREE—but worth a lot to you. These valuable Data Books are brimfull of useful information. They are more than merely catalogs. You should have them in your files and you will find occasion to refer to them frequently. Write for your copies today, SURE, while you have the subject fresh in mind.

The Book above is 64 pages, in five colors
—the one below is 64 pages, in four colors.

MILWAUKEE CORRUGATING COMPANY, Milwaukee, Wis.

Chicago
Kansas City
La Crosse
Minneapolis
WHILE taste may guide you in choosing the design of bathtub or lavatory, the sanitary importance of the water closet is such that it is best to rely upon the judgment of a reputable manufacturer.

One of good quality is a protection against foul air, sewer gas, and disease germs. It is a protection against repairs to tank and fittings. "Tepeco," the world's largest maker of All-Clay Plumbing Fixtures, offers for residential purposes the four recognized types—each in its class, and at its price the best that can be made. We believe it will pay you to install one of them.

"Si-wel-clo" . $97.50
"Welling" . 60.50
"Merit" . 51.00
"Saxon" . 45.50
F. O. B. Trenton

Send for our free Plan Book—"Bathrooms of Character"

THE TRENTON POTTERIES COMPANY
TRENTON, N. J., U. S. A.

NEW YORK BOSTON SAN FRANCISCO

TEPECO Water Closets
FOR EVERY PLACE AND PURSE
The Bathroom That Has A Shower Should Also Have A One-Nozzle Fixture on the Lavatory—

Surely persons who wish to Bathe in running water will also desire to Wash in running water.

You know from your own experience that it is almost impossible to wash comfortably under two faucets—one is usually too hot and the other too cold.

Speakman Unit and Unit-Acto lavatory fixtures have one nozzle which allows the temperature of the water to be regulated to exactly the desired degree.

Speakman one-nozzle lavatory fixtures have built into them the same quality that has made the national reputation of Speakman Showers. These lavatory fixtures fit practically all existing lavatories and can always be had on new lavatories.

Escutcheons and handles on Speakman lavatory fixtures harmonize perfectly with those on Speakman Showers—all are finest American-made china, extra heavy.

We'll be glad to send out Catalog H, showing Speakman lavatory fixtures and showers—the entire Speakman line is illustrated and described. This catalog has been made up loose-leaf for your files, size 10½ x 8½ inches.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN SHOWERS
AND FIXTURES
Quoting the management, "The Roosevelt shall be first and last an agreeable 'other home' for every man, woman and child who enters its portals." And Jenkins Valves have a significant part in fulfilling this promise.

Guest comfort and satisfaction are dependent in a large measure on the performance of power plant, plumbing and heating equipment, for which hundreds of Jenkins Valves are used.

The Roosevelt is the last word in fireproof construction, and also has adequate fire protection service—both highly essential to safety. Fire line outlets are equipped with Jenkins Fire Line Valves because they hold pressure without leakage, open quickly and do not stick or corrode at the seat.

Furthermore, Jenkins Valves, due to freedom from costly repairs and replacements, reduce maintenance costs, and this makes for bigger returns on hotel investments.

Write for our new Hotel Booklet.

JENKINS BROS.
80 White Street . . . . New York, N.Y.
133 North Seventh Street, Philadelphia, Pa.
646 Washington Boulevard . Chicago, Ill.
JENKINS BROS., LIMITED .
Montreal, Canada . London, England
But one of many testimonials received from leading hotels:

THE TYLER, Louisville, Ky.

"In the six years your Whale-Bone-Ite seats have been installed in this hotel we have not had one bit of trouble with them. They have needed no refinishing, and to our knowledge they are the best seats on the market for wear, appearance and sanitation. . . ."

The Hotel Biltmore, Los Angeles, the latest word in modern hotels. Entirely Whale-Bone-Ite equipped.

No Whale-Bone-Ite toilet seat has ever worn out

Hotels demand them because there is no upkeep or repair cost—always good looking, sanitary with least attention

In all the years we've been making Whale-Bone-Ite toilet seats, not one of them has ever worn out.

We absolutely guarantee every seat we make. The ten outstanding exclusive features of Whale-Bone-Ite are:

- Permanent Durability
- One-Piece Construction
- Non-Warping
- Sanitary
- Easiest Cleaned
- Acid-Proof
- Non-Inflammable
- Permanent Finish
- No Exposed Metal
- Comfortable

That is why today leading hotels everywhere insist upon Whale-Bone-Ite as original equipment, and older hotels are making their final replacement with them.

Plumbers or Jobbers can give you complete information.
Or write direct: Whale-Bone-Ite Division

THE BRUNSWICK-BALKE-COLLENDER CO.
623 South Wabash Ave., Chicago, Ill.
DOUGLAS VITREOUS CHINA STALL URINAL

Impervious to Moisture
Made from the same material as closet bowls and lavatories

Guaranteed not to Craze or Discolor

Ask us for details and descriptive literature.

Manufactured by

THE JOHN DOUGLAS COMPANY

General Office, Cincinnati, Ohio
Works, Cincinnati and Trenton
MADDOCK Sanitary Fixtures

"objets d’art"

Thomas Maddock bathroom equipment is to be found in the homes of men and women whose discriminating tastes are not assumed.

MADVAL K-2831
White Vitreous China Pedestal Bidet with flushing rim and integral douche. Fitted with supply valves with all-china handles and escutcheons for supplying hot and cold water to the flushing rim or centre douche and pop-up waste to retain the water in the bowl when desired.

THOMAS MADOCK'S SONS COMPANY
Trenton, New Jersey.
What the client remembered

EIGHT months after the plant was completed, the owner had forgotten all the careful, conscientious work of the architect.

For the concrete floor of his building had developed a number of crumbling weak spots. On trucking aisles and around doorways and machinery, there were deep hollows. In places the top surface had completely given way. The air was full of concrete dust—dust as harsh and sharp as fine emery.

One specification the architect had left open. It was only a seemingly unimportant detail—the choice of a floor hardener. Yet that detail was sufficient to offset months of conscientious work. For now it was necessary to hold up production and resurface the floor. That was the only thing the manufacturer remembered about the architect's work.

It is easy for an architect to make certain of turning out a concrete floor that will be lastingly dust-proof and wearproof. The way to do that is to specify the oldest and best-proved floor hardener on the market. Its name is Lapidolith.

As confirmation of this you can turn to hundreds of millions of feet of Lapidolized floors in the leading industrial plants of this country—such plants as Ford Motor, Standard Oil, Swift & Company, Bethlehem Steel, etc. Many of the floors that were treated with Lapidolith years ago when it was first developed, are still in service today and in excellent condition.

Lapidolith is a colorless liquid chemical that penetrates the concrete a considerable distance. It produces a fine, even, close-grained wearing surface of crystalline formation. This surface is flint-like in its hardness. It is wearproof, dustproof, waterproof. Truck wheels, scuffing feet, machinery—they do not affect a Lapidolized floor at all.

The price per gallon of Lapidolith is a trifle higher than other so-called “hardeners,” but it turns out floors of which you can be permanently proud. When you have once seen the work Lapidolith does, you will never harden concrete floors with anything else. Send for literature giving further information.

Fermo—Hastens the setting of concrete and minimizes the danger of freezing in cold weather. Incorporated in the mix.

Cemcoat—an industrial gloss, eggshell or flat enamel paint that stays white longer than any other paint; that can be washed again and again; usually requires one less coat, and does not powder, crack or peel. Made for both interiors and exteriors, in white and colors.

Hydrocide—a high grade line of water- and damp-proofing products, for walls, foundations, etc. For each particular use there is a special kind of Hydrocide. For instance, on exterior walls where it is desired to preserve the natural beauty of the brick, Hydrocide Colorless is 100 per cent efficient.

L. SONNEBORN SONS, Inc.
114 Fifth Avenue New York City
Index to Advertising Announcements

Acme Brick Company
20
Adam Electric Company, Frank
139
Allen, Louis L.
137
American Brass Company, The
146
American Chain Co.
113
American Face Brick Association, The
15
American Laundry Machinery Co.
139
American Lead Pencil Co.
10
American Radiator Company
151
American Seating Company
46
American Sheet and Tin Plate Co.
21
American Stone Company
139
American Walnut Mfrs. Ass'n
79
Appalachian Marble Company
19
Armstrong Cork and Insulation Company
17
Armstrong's Linoleum
10
Automatic Electric Company
11
Batchelder-Wilson Company
10
Berry Bros
56
Bett Geary
132
Bishopric Manufacturing Co., The
40
Bonded Floors Company
47
Bracco Manufacturing Co.
63
Brunswick-Balke Collender Co., 54, 160
Bryant Heater & Mfg. Company
150
Builder, The
30
Byers Company, A. M
155
Cabot, Samuel
76
California Pine Association
115
Carey Co., The Philip
113
Carney Company, The
23
Carter Bloxomend Flooring Company
67
Chase Metal Works
154
Chippewa Pump Company
136
Circle A Products Corporation
32
Cintor Metallic Paint Co.
10
Clow & Sons, James B
165
120
Common Brick Mfg. Ass'n
16
Concrete Supplying Terra Cotta Co.
12
Corbin, P. F., & Co.
28
Crane Company
167
Crittall Casement Window Company
89
Curtis Companies
66
Curtis Lighting, Inc
132
Cutler Mail Chute Co.
82
Dahlstrom Metallic Door Company
84
Detroit Steel Products Company
92
Devo & Raymonds
57
Dixon Crucible Co., Joseph
26
Douglas Company, The John
161
Dunnah Co., C. A
146
Eagle-Picher Lead Company
58, 59
Elevator Supplies Company, Inc.
126
Elijer Company
172
Excelco Specialty Works
146
Faia Manufacturing Company
50
Federal Terry Tile Company
74
Fiesco & Co.
12
French & Co., Samuel H
56
Frink, Inc., L. P.
122
Fulton Company, The
194
Galassi Company
66
General Electric Company
133
General Fireproofing Co.
91
Georgia Marble Company, The
20
Gillis & Government
48
Gilden Company, The
60
Globe Ventilator Company
146
Gorton & Lidgerwood Co.
136
Goulds Manufacturing Co.
144
Guastavino Co., R
2
Guth Company, The Edwin F.
123
Hart & Hegeman
127
Hartmann Sanders Co.
82
Hauserman Co., The E. F.
31
Heggie Simplex Boiler Corporation
9
Hess Warming & Ventilating Co.
140
Higgins & Co., Charles M.
30
Hitchings & Co.
116
Hooker Co., The
65
Hoffman Manufacturing Co., Andrew
84
Hoffman Specialty Company
134
Holophane Co.
124
Hope & Sons, Henry
86
Illinois Engineering Company
171
Improved Office Partition Company
42
Indiana Limestone Quarriesmen's Association
21
International Casement Co.
87
Jenkins Bros.
159
Johns-Manville, Inc.
145
Johnson Service Company
147
Kaeser & Hecht Co.
38
Kawnee Co., The
90
Kelsey Heating Co., The
141
Kelvinator Corporation
118
Kensingon Mfg. Company
45
Kent-Costikyan Trading Company
46
Kerner Incinerator Co., The
117
Kewanee Boiler Company
109
Kewanee Private Utilities Co.
156
Kewaunee Mfg. Co.
132
Keystone Roofing Manufacturing Company
75
Knapp Brothers
86
Knoke-Scheerer Corporation of America
138
Kohler Company
163
Lloyd Co., W. H. S.
50
Long-Bell Lumber Co.
80
Louisville Cement Co.
25
Ludowici-Celadon Company
72
Macoustic Engineering Company
6
Maddock's Sons Company, Thomas
162
Mahogany Association, Inc.
52
Martin Varnish Co.
56
Massillon Steel Joint Company, 4th Cover
80
Master Builders Company, The
68
136
Milwaukee Corrugating Co.
94
Mississippi Wire Glass Co.
46
Mount & Robinson, Inc.
30
Muller & Co., Franklyn R.
66
Murphy Door Bed Co., The
51
Nash Engineering Co.
37
National Building Granite Quarries Association
22
National Fire Proofing Company
150
National Lead Company
62
National Metal Molding Co.
130
National Mortar & Supply Co., 128
National Steel Fabric Co.
135
National Terra Cotta Society
130
National Tube Co.
153
Nelson Corp., The H. W.
137
New Jersey Wire Cloth Company
82
New Jersey Zinc Company
77
Northwestern Terra Cotta Co., The
14
North Western Expanded Metal Co.
5
O'Brien Varnish Company
60
Otis Elevator Company
120
Pacific Lumber Co., The
76
Peelle Company, The
85
Pfaulder Co., The
60
Pittsburgh Plate Glass Co.
93
Plate Glass Mfrs. Ass'n.
94
Portland Cement Association
24
Pratt & Lombert, Inc.
61
Ramp Buildings Corporation
11
Reading Iron Company
152
Richards Wilcox Mfg. Co., 2nd Cover
73
Ruddfia Lumber & Veneer Company
81
Ruberoid Co., The
69
R. U. V. Co., Inc.
2
Rusd Mfg. Co.
143
Samson Cordage Works
142
Samsonky Cement Company, The
13
Sargent & Company
3
Schumacher & Co., F.
49
Simplex Wire and Cable Co.
116
Smith & Ege Mfg. Co., The
86
Smoyer-Royer Co.
122
Sonnenborn Sons, Inc., L
169
Spengler Company
158
Spencer Turbine Company
148
Standard Gas Equipment Co.
121
Stewart Iron Works, The
140
Straus & Co., S. W.
16
Sturtevant Co., B. F.
140
Thatcher Furnace Company
148
Todhunter, Arthur
50
Trenton Potteries Co.
157
United Alloy Steel Corporation
142
United States Gypsum Company
107
United States Mineral Wool Co.
136
United States Radiator Corporation
149
Van Range Co., John, The
95
Van Zile Ventilating Co.
144
Vonnegut Hardware Co.
29
Wallace & Tierman Co.
136
Weatherbest Stained Shingle Company
76
Western Brick Company
12
Western Electric Company
126
Wilson Corp., The J. G.
94
Young Pump Co., The
144
Nearly a Quarter-century of Technical Leadership Has Demonstrated the Value of Illinois Heating Systems in Control and Economy of Operation

Illinois heating devices of 1900 are still doing their work satisfactorily—without cleaning or renewal costs. This long record of achievement is a familiar one to engineers and architects. The element of chance is eliminated. Illinois Products during this span of years have paralleled the progress of advanced engineering science, so that the heating field has bestowed on them the distinction of leadership. Illinois Products are guaranteed to give perfect operative results. They are distinguished by long life, ease of control and economy of operation.

ILLINOIS HEATING SYSTEMS

Our Engineering Department cooperates efficiently with engineers and architects in developing details of design, installation and efficiency. Write for Bulletin No. 25.

ILLINOIS ENGINEERING COMPANY
INC. 1900
ROBERT L. GIFFORD, President
General Offices and Factory: CHICAGO, ILLINOIS
Branches and Sales Offices

Consult Local Telephone Directory
Why pay a high price?

Two-fired real vitreous china.
There is no better quality.

The Lyndon gives every utility value of the 20-inch size lavatory.
And at a 35% saving in cost.
It is a space saver.
The Lyndon is a two-fired real vitreous china lavatory, made of the same material in the same way as the largest and most expensive lavatories.

ELJER CO. FORD CITY, PA.
Leading Applications for Medusa White Cement: —

Artificial Stone
Cement Plaster
Cast Stone
Concrete Block Facing
Cement Brick
Cement Mantels
Floor Tile
Lawn Furniture
Mortar
Ornamental Cement Work
Lamp Standards
Stucco
Swimming Pools
Shower Baths
Traffic Markers
Terrazzo Tile
Table Tops and Counters
— and many more

CONTRAST — white against black, grays and variegated greens — that is the beauty of snow.

So, the clean-cut, pleasing beauty of the home whose walls are made of Medusa White Portland Cement Stucco is sharpened through contrast with its surroundings.

And stucco is just one of the many uses for Medusa White Portland Cement. Medusa Books, and our Catalogs in “Sweet's,” pages 102-103 and 349-351, discuss the uses of this exceptional material and give exact specifications. We shall be pleased to send you the books on request.

THE SANDUSKY CEMENT CO., Dept. F, Cleveland
Manufacturers of Medusa Non-Staining White Cement (Plain and Waterproofed); Medusa Waterproofing (Powder and Paste); and Medusa Gray Cement (Plain and Waterproofed).

MEDUSA WHITE CEMENT
Build Fire Out Now!

Last July the Canton Grade School at Canton, N. Y., was gutted by fire. The brick walls alone remained standing. The school board adopted a “never again” policy and rebuilt with Massillon Bar Joist firesafe floors, using the old walls for support. A new addition also embodies the same type of floors. Don’t wait for flames to drive you to Massillon Bar Joist firesafe floors. Build fire out now. Massillon Bar Joists are made in 22 standard sizes, meeting every span and load requirement. Piping and conduits can be installed in any direction without raising floor level or suspending ceilings. The joists are quickly installed and need never be cut except where they extend into outside walls far enough to interfere with face brick. Write us for complete information and safe loading tables.

The Massillon Steel Joist Company, Massillon, Ohio

MASSILLON

BAR JOISTS