

THE SOUTHERN ARCHITECT AND BUILDING NEWS

VOL. L.

NUMBER 11

CONTENTS FOR DECEMBER, 1924

The Southern Office Building	41	The Hurt Building, Atlanta, Ga.	65
-----By Ray Holcombe.		The Office Building Taxation Problem	69
Portfolio Recent Southern Business Buildings	47	-----By Frank Weldon.	
A Glance at the 1924 Office Buildings	55	PLATES	47
-----By Thomas Franklin.		Magnolia Building, Dallas, Texas	47
Development of American Practice in Reinforced Concrete	58	-----Alfred C. Bossom, Architect.	
-----By Robert D. Snodgrass.		Ashland National Bank, Ashland, Ky.	48
Office Building Design from the Standpoint of the Operating Owner	63	-----Schenk & Williams, Architects.	
-----By C. F. Palmer.		Wayne National Bank, Goldsboro, N. C.	51
		-----Alfred C. Bossom, Architect.	
		Security Building, Memphis, Tenn.	54
		-----McKim, Mead & White, Architects.	

E. R. DENMARK, Editor.

Price \$5.00 Per Year.

Published Monthly by

HARMAN PUBLISHING CO.

This paper is issued between the 18th and 25th of the month previous to the month of publication date and mailed from our printing house at Dalton, Ga. Business Office, Atlanta, Ga. All letters should be addressed to the Atlanta office, 402 Trust Co. of Ga. Bldg. Southern Architect and Contractor, Atlanta, Ga., and Southern Building News, Memphis, Tenn., and Southern Building Record, Nashville, Tenn., Concrete Age, Atlanta, Ga., Consolidated.

1924 SCHEDULE FOR ADVERTISERS

For Jan. and Feb. issue copy and all cuts must reach us by	Dec. 20th
For March	Jan. 20th
For April	Feb. 20th
For May	Mar. 20th
For June	April 20th
For July	May 20th
For August	June 20th
For Sept.	July 20th
For Oct.	Aug. 20th
For Nov.	Sept. 20th
For Dec.	Oct. 20th

Refinement in radiator trap design that eliminates the "removable seat"



Trane 14 corrugation bellows radiator traps are made in 9 sizes, styles and patterns. They are guaranteed for 5 years. See information in Trane Bulletin 6B.

Reasons for the removable seat

- (1) If Trane traps had iron bodies we would use removable seats, because iron can not be used for a seat, and one-piece construction would be, therefore, impossible.
- (2) If Trane bellows did not have reserve power over the amount actually required to close the outlet we would use a removable seat, because without reserve power the trap would not close tight enough to prevent scoring, and renewals would be necessary.

Objections to removable seat

- (1) Removable seats project above the surface of the trap outlet, and collect dirt that may in time lower the efficiency of the device.
- (2) A removable seat may get out of adjustment. It adds to complication.
- (3) The uniformity required for interchangeable elements is difficult to secure when removable seats are used.

How Trane eliminates necessity for removable seats

- (1) Trap bodies furnished by Trane are made entirely of steam brass, and, therefore, the seat may safely be machined directly in the trap body and flush with the bottom.
- (2) Each Trane thermostatic element has 4.7 pounds reserve power over the 2 pounds actually required to close, thus overcoming any tendency to score.

- (3) Each Trane thermostatic element is made exactly like each other Trane Thermostatic element for a given size of trap. The element is machined to fit the trap cover. The cover is machined to fit the body. The seat fits the plunger, and the distance from the trap top to the trap seat is always exactly the same. And because of all these little refinements in manufacture, plus the reserve power of the element, and plus the all-brass body, the bellows are not only 100 per cent interchangeable, but the removable seat is entirely eliminated and you have at your command a 14-corrugation bellows trap without a dirt-collecting outlet. And to make a good buy better, the price is right.

TEN FEATURES OF TRANE TRAPS

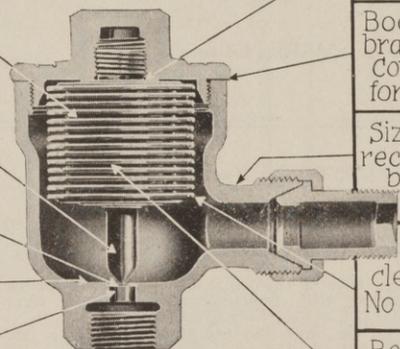
14 Corrugation Bellows 1 3/4" in diameter. Great Power.

One Piece Plunger. No Adjustments

Seat is right in trap body. Absolute Uniformity.

Floor of Body is perfectly smooth. No tendency to clog.

Oversize outlet. Quick elimination



Bellows screws up tight. Interchangeable.

Body made of brass, nicked Cover is brass forging

Sizes are as recommended by H&PC.N. Ass't

Bellows clears inlet. No obstruction.

Bellows made by TRANE. Special one piece construction.

THE TRANE COMPANY, 210 Cameron Ave., La Crosse, Wis. Manufacturers of vapor and vacuum heating specialties and pumps. Branches and sales connections at New York, Chicago, Boston, Philadelphia, Buffalo, Cleveland, Detroit, Seattle, Albany, Minneapolis, Salt Lake City, Ft. Wayne, Portland, Oregon; Greensboro, N. C. In England: 22-23 Clerkenwell Close, London, E. C. 1. In Canada: The Trane Co., 23 River St., Toronto; Thomas Robertson & Co., 134 Craig St., West, Montreal.

Trane ONE-PIECE RADIATOR BELLOWS TYPE Traps

A Presentation of Architectural Subjects of Unusual Interest and Value to the Profession

TO APPEAR DURING 1925
IN THIS MAGAZINE

THE GEORGIAN PRECEDENT IN CHARLESTON (*Illustrated*).

NEW ORLEANS A CITY OF ARCHITECTURAL INTEREST (*Illustrated*).

HOUSES OF THE GREEK REVIVAL IN THE SOUTH (*Illustrated*).

SOME DETAILS OF GEORGIAN INTERIORS (*Illustrated Page Plates*).

ARCHITECTURAL FEATURES OF SAVANNAH (*Illustrated*).

A GEORGIAN GARDEN OF 1824 (*Illustrated*).

ARCHITECTURAL SIGNIFICANCE OF THE HOUSES AT WILLIAMSBURG, VA. (*Illustrated*).

THE HOMES OF THE WASHINGTON FAMILY AT FREDERICKSBURG (*Illustrated*).

ANTE-BELLUM HOUSES OF NATCHEZ, MISS. (*Illustrated*).

AN ARCHITECTURAL TOUR THROUGH GREECE (*Illustrated with Sketches*).

SOME INTERESTING GARDENS OF SEVILLE (*Illustrated*).

DOORWAYS IN BELGIUM (*Illustrated*).

A SPECIAL NUMBER ON THE SMALL THEATRE (*Over 100 Illustrations*).

A SPECIAL NUMBER DEVOTED TO LIBRARIES (*Over 100 Illustrations*).

A SPECIAL NUMBER ON COUNTRY HOUSES AND GARDENS (*Over 100 Illustrations*).

SPECIAL NUMBER ON RETAIL SHOPS (*Over 100 Illustrations*).

EDITOR'S NOTE—These articles have been prepared by men specially fitted to write on the subject covered. The illustrations have been chosen with the utmost care and consideration for their architectural merit. The four special editions will cover thoroughly every detail embodied in the design, construction and equipment of the subjects taken for discussion.



MAIN ELEVATION
STATE OFFICE BUILDING, RICHMOND, VA.
CARNEAL & JOHNSTON, ARCHITECTS.

THE SOUTHERN ARCHITECT AND BUILDING NEWS

VOLUME L.

DECEMBER, 1924

NUMBER 12

The Southern Office Building

By Ray Holcombe.

IN considering the Southern Office Building we are unable to see wherein its major details should differ from a similar structure located in any other section of the country. The same problems are presented to the architect in the North, East and West as to the architect in the South. The same fundamental principles of office building plan must be adhered to whether the building happens to be located in San Francisco, New York, Richmond or Atlanta. Zoning laws in different cities will of course change the problems slightly but the same principle will still exist.

The modern office building is a complicated piece of machinery. Its function is the housing of a select class of people engaged in widely different phases of business activity. Its design must be such as to take care of the daily inhabitants in a businesslike way. In order to accomplish the end in view of its builder an unlimited amount of imagination, ingenuity, and mechanical and engineering skill must be put into play. The idea in erecting an office building is of course to make money, so every detail from the selection of a site to the final completed building must be figured in terms of dollars and cents, if it is to prove a financial success.

Taking past experience as a guide we will endeavor to bring out some salient facts (not new but perhaps in a great many cases overlooked) in regard to selection of site, plan, and economical factors involved in the office building problem. If the lot has already been chosen, then the problem becomes one of planning a building to conform to the lot. However, we will begin the discussion from the standpoint of the man who wishes to build and the architect who has been awarded the commission. No lot has been selected nor any plan drawn.

The question arises, where can we secure a suitable location for the proposed structure? How

much can we afford to pay for the site, etc? This question should be taken with serious consideration by both the architect and his client, as it is one of utmost importance in making the future building a paying proposition. To begin with, a careful economic survey of the city, and the district where the lot in view is situated, should be instituted to ascertain whether there is and will continue to be a demand for office space sufficient to insure financial success. Mr. Leo J. Sheridan, Chairman of the Building Committee, S. W. Strauss & Co., gives the following facts as important in such a survey:—"The basic economic factors responsible for the city's present size and prosperity—location, natural resources, industries, transportation facilities, labor supply, power cost, etc.—total net rentable office area and percentage of occupancy should be secured for a period of years in the past and an attempt made to correlate the city's office space requirements with its population, its bank clearings, or bank debits, and other indexes of business activity." It is interesting to know that a recent investigation in twelve leading southern cities with a population of around 300,000 indicates that the average requirement of office space is 4½ square feet for each inhabitant and 1 square foot for every \$1,322 of bank clearings.

The results of this investigation should show clearly whether or not the city needs more office space and if the demand will continue in the particular district in which the proposed lot is located. We would like to know right here just how much or approximately how much we can charge per square foot of office space. A survey of the income from present buildings located in the neighborhood will give a fair idea. The architect will at this point figure the size building that can be placed on the lot, with the number of square feet of rent-

able space it will contain. He must then determine how much the building will cost per cubic foot since all building is figured in cubic feet. An idea can be had by examining the cost of recently constructed buildings in the locality. Taking 16 cubic feet as a basis for one square foot of rentable area this basis being determined by an investigation by Helme & Corbett, Architects of New York city, of a number of leading office buildings) and knowing the probable charge that can be made per square foot for office space from the survey of buildings in the district, we then multiply 16 by the approximate cost per cubic foot and divide this into the amount that can be charged per square foot of rentable area. This figure will give us the approximate gross return on the building investment. If this gross return will take care of the building cost, and the future necessary outlay of capital, we will know whether or not the purchase of the lot is justifiable at the quoted price per square foot. By these figures one will also determine the size of lot to purchase and the number of stories to build.

The lot is now in hand and the remaining problem is of course to plan a building suitable to the lot. In office building practice it is customary to start at the top floor in making a plan, rather than at the bottom, as

is the case in most all other building projects. This is due to the fact that there are a great many typical top floors to one ground floor. After a typical office unit plan has been formulated it then becomes a matter of placing any number of these units along each side of a corridor with allowance of course for elevator shafts, vent shafts, flues, stairways, et cetera.

Just what is meant by a well planned office unit is a question upon which authorities differ. However, experience has taught that it is better to have a shallow office well lighted than a deep one poorly lighted. Depth, in this instance, refers to the

distance from windows to corridor. The width will depend entirely upon the distance between the steel columns forming the framework of the building. In the well executed plan this distance will not be less than 15 nor more than 22 feet. The shallow office unit plan naturally cuts down the size of the building, requiring less capital investment, and at the same time giving offices that are just as valuable from a rental standpoint as offices of greater depth. Every office building owner will insist that the architect incorporate in his plans so many windows in each office that the tenants may have plenty of natural light and a bounty



VIEW IN LOBBY

STANDARD OIL BUILDING, BALTIMORE, MD.

of natural ventilation. It is well enough that this should be done, but in a great many cases it is overdone. The owner seems to forget that the more windows in the building the more heat is going to be required during the winter months, which certainly costs real money, and adds a large sum to

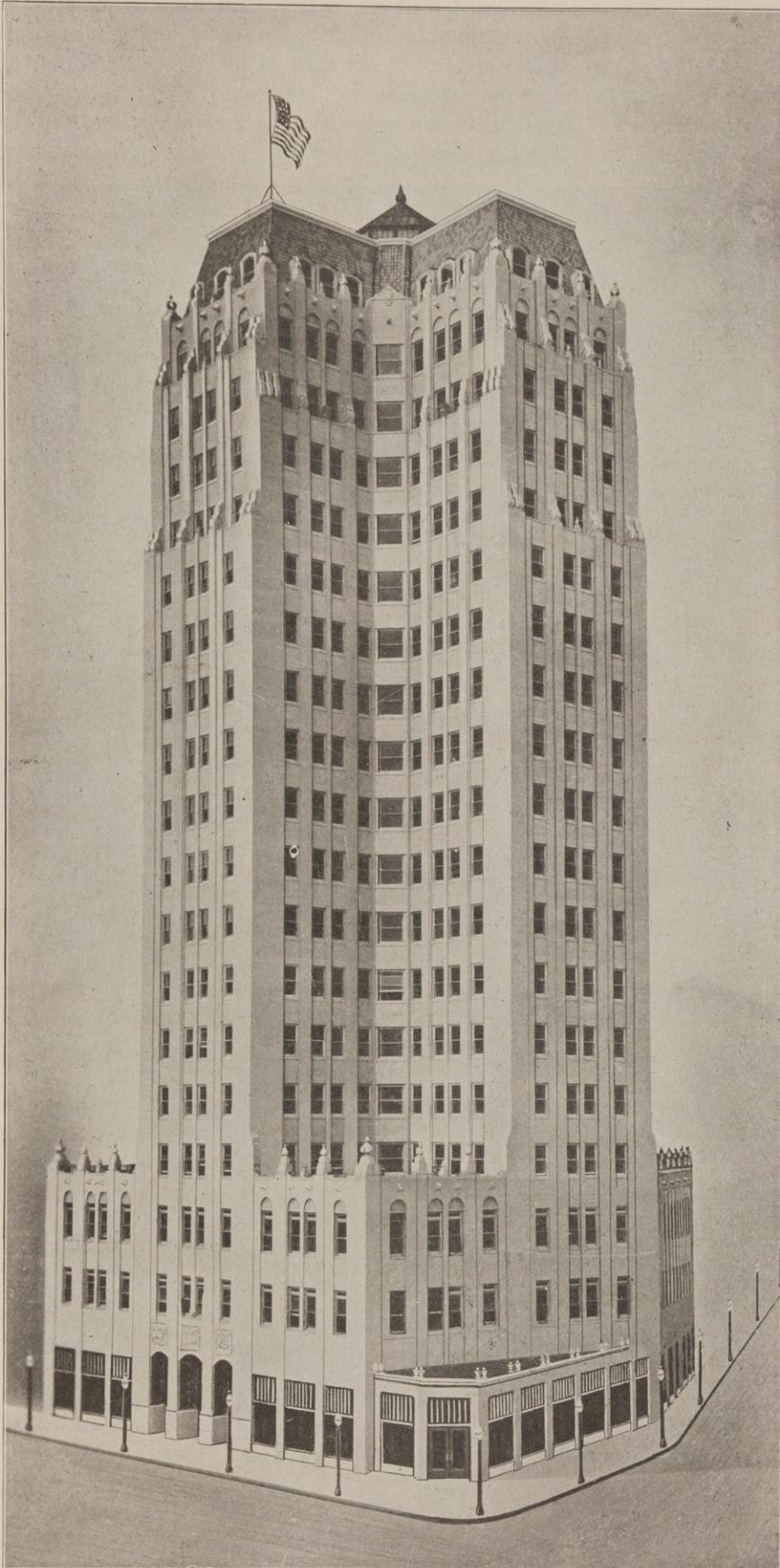
high light is much better than low light, so it is more valuable to have the extra margin of wall space at the bottom than at the top. Windows of average size equally distributed along the exterior wall space not only afford a greater opportunity for a more elastic division of offices throughout the



CALDWELL BUILDING, NASHVILLE, TENN.
 McKIM, MEAD & WHITE, ARCHITECTS.
 MARR & HOLMAN, ASSOCIATES.

the annual expenditure of operation. Experience seems to indicate that it is better to have two windows to each bay, than one large window or three smaller ones. If one large window is used we have too much wall space and if three smaller ones are used we have too little. It is a well known fact that

building, but add much to the architectural effect of the exterior walls. For artificial light several well placed fixtures will give a better illumination than one large central light. We will deviate here for a moment from the discussion of the typical office unit to make mention of some special office



MEDICAL ARTS BUILDING, DALLAS, TEXAS.

C. E. BARGLEBAUGH OF BARGLEBAUGH & WHITSON, ARCHITECTS.

arrangements that might be of interest to the prospective builder. We have known of several cases where the building owner had already secured

a number of very large business concerns as tenants even before the first step in the proposed building plan was taken. Where a case of this kind exists, we believe that it is sound business to call into consultation the executives of these businesses with both architect and owner. In this meeting should be determined the various divisions of office space which these businesses will require to more thoroughly carry on their business operations. It is far better to do this in the beginning than to wait until the building is completed and then have to make the desired changes. For instance, we know of a case where an executive of a concern insisted that in his private office there be located a fireplace. While this is an exception it goes to show that many well thought of tenants desire special fixtures and arrangements in their offices that the owner cannot afford to overlook in trying to satisfy them.

We now come to one of the most important points in the whole building plan, the corridors. When the prospective tenant steps from the elevator into the corridor he is either going to be favorably impressed or sadly disgusted. In other words, the corridor can make or mar the whole tone of the upper floors. It is quite impressive to step into a spacious well-lighted corridor, and quite as disagreeable to walk into one that is narrow and dark, which gives you the feeling of being pinned in between two cold walls. The extra expense that might be required to have wide corridors will be money well spent. There is no standard width of corridors, but if the corridor necessarily runs to a great length it is essential that it be

made as wide as possible. If the building requires only a short corridor then one much narrower will be sufficient. Every corridor should increase in width

as it approaches the elevators. This is usually accomplished by setting the elevator shafts back a few feet, thus breaking the wall space and increasing the width of the corridor several feet in front of the elevators. We do not believe in large expenditures of money for marble wainscoting, mosaic floors, etc. If the corridor is of spacious width and well lighted then simplicity of wall treatment is equally effective if not more so than expensive wall and floor surfaces in a narrow one.

In every building plan we find what is called "dark" areas. For instance, where a wing joins the main building. These dark areas being unsuitable for office space on account of insufficient natural light and ventilation become the most logical place for the necessary utilities in every building, such as stairways, toilets, closets, etc. It is better, however, to place toilets where they will receive some natural light and air if it is possible to do so without taking up valuable rental office space. They might be placed on some back court. It is customary in all modern buildings to have a sufficient number of toilets grouped together on every floor that will accommodate the tenants residing thereon. Wash basins should of course be placed in every office.

Elevator service in every office building is one of the most important items to be considered. Our older buildings are sadly lacking in elevator efficiency, but with the construction of the more modern buildings we find this feature well taken care of. Elevator openings should be made at a central point along the corridor. No tenant should be re-

quired to walk more than 100 feet from his office door to reach the cars. The most desired arrange-



COLUMBIAN LIFE BUILDING, MEMPHIS, TENN.
BOYER & BAUM, ARCHITECTS, ST. LOUIS, MO.

ment is a battery of six machines, three facing three. While a battery of eight might be necessary more than this will be useless as the passenger could not possibly reach the one farthest away before it would pass after the signal was flashed. If the area of the building is such that more elevators are required, their arrangement might be just as if there were two buildings with a separate battery serving each unit. Experience in elevator efficiency shows that a battery of six cars is capable of taking care of all passengers up to a 15 story limit (that is, where they serve one unit). In case of a building containing more than 15 stories the problem is one of two buildings one on top of another with the same vertical circulation and in this case there should be an "Express Service" from the top section. Freight elevators are essential but of course do not require the same consideration as should be given the passenger machines. They should, however, be placed near enough to the passenger cars so that in case of emergencies or rush hours they can be put into use for passenger service.

The stairway in American office buildings has little if any practical use since we have acquired the habit of using the elevators even to go one floor up or down as is desired. Since the law required the stairway we must include it in the building. It is usually, if not always, located in the dark area and near the elevator shafts. In the modern buildings it is always enclosed behind fire retarding doors and its only practical use is that of a fire escape.

In regard to the ground floor there is very little that can be said in a definite way as to plan, since the problem is different in every building. Certain steel points are fixed, being the columns forming the framework of the building. Elevators, stairways, and smoke towers are all fixed. All other space is that through which a hall must be provided leading to the elevator entrances. In practically all office buildings there are provided special offices off the hall for some business institution which has taken the entire floor.

In many buildings the first basement is used for barber shops, cafes, and other similar businesses which do not necessarily require natural light and ventilation. In the sub-basement is located the mechanical equipment, such as boilers for heating, motors that drive the elevators, ventilating machinery, and in some cases refrigerating machines that furnish cold water throughout the building. The number of sub-basements of course depends upon the height of the building. There may be as many as four or even five in some of the largest skyscrapers.

We have tried to mention all important items in the building, but we would not feel justifiable in ending this article without taking up specially the importance of the vestibule, hallway and the facade of the building.

The American Office Building stands out unique in world architecture. If, for any reason, it is because of the wonderful proportion of mass which our architects have been able to give to steel and concrete. Detail is more or less subdued, and yet it is detail when properly handled, and connected with good proportion of mass, that gives to any building distinction and character. Any extra expenditure that the building owner might be put to in allowing his architect to develop an interesting entrance detail and a distinctive main facade will be money exceedingly well spent. In the long run it is sound business economy.

The same logic that dictates a well executed main facade holds true in the case of hallways and vestibules. Architects the country over are today more than ever before advising their investing clients to show the best they can afford when the prospective tenant crosses the threshold of the building, and it is not very difficult to convince them that here, at least, an investment in beauty will bring a return many times over. Here, materials, fixtures and decorations should be chosen with care, and if they are handled by an architect who is thoughtful in his design they will express that much desired dignified simplicity.

P O R T F O L I O

RECENT SOUTHERN BUSINESS BUILDINGS



MAIN ELEVATION

MAGNOLIA BUILDING, DALLAS, TEXAS.

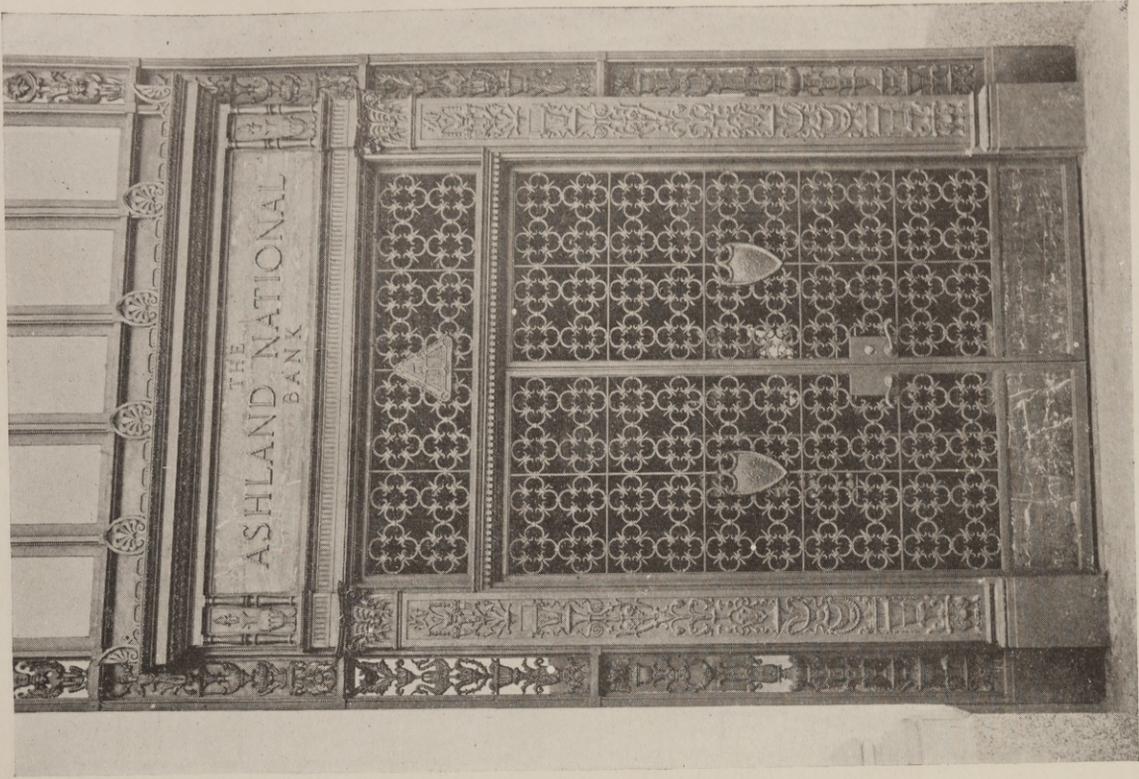
ALFRED C. BOSSOM, ARCHITECT.



MAIN ELEVATION

ASHLAND NATIONAL BANK, ASHLAND, KY.

SCHENCK & WILLIAMS, ARCHITECTS.



DETAIL BRONZE DOOR.



DETAIL LOWER FACADE

ASHLAND NATIONAL BANK, ASHLAND, KY.

SCHENCK & WILLIAMS, ARCHITECTS.



DIRECTORS' ROOM

ASHLAND NATIONAL BANK, ASHLAND, KY.



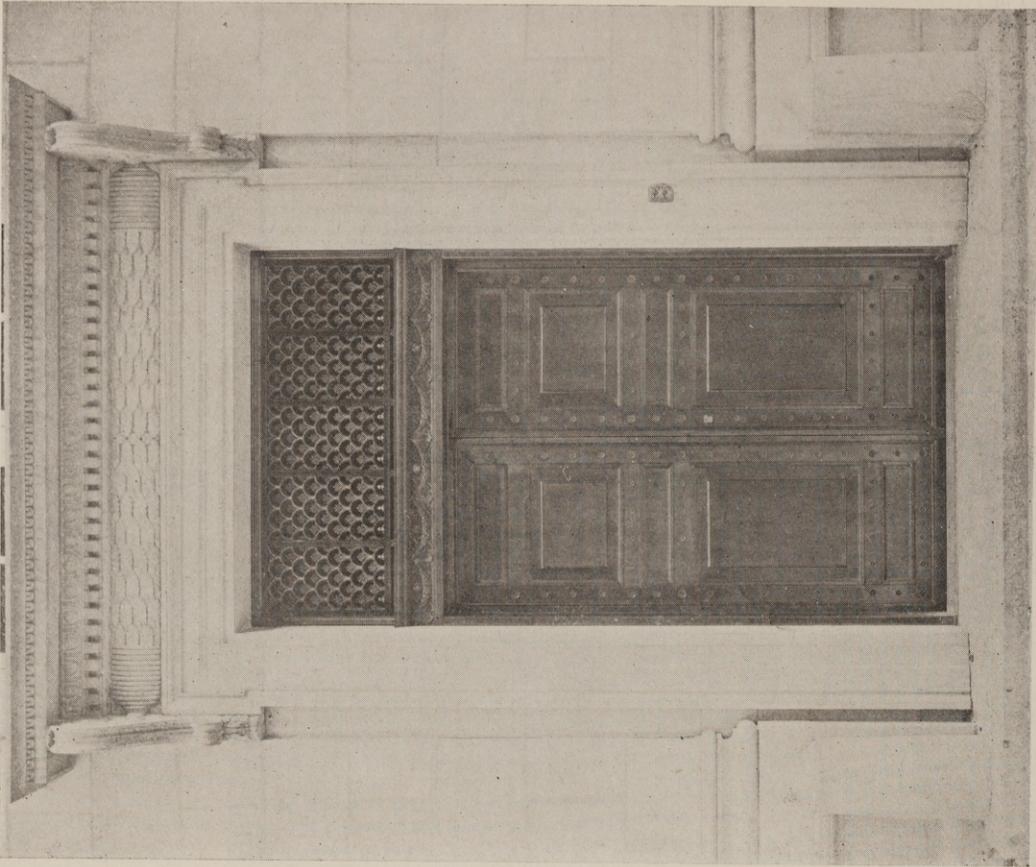
MAIN BANKING ROOM

ASHLAND NATIONAL BANK, ASHLAND, KY.

SCHENCK & WILLIAMS, ARCHITECTS.



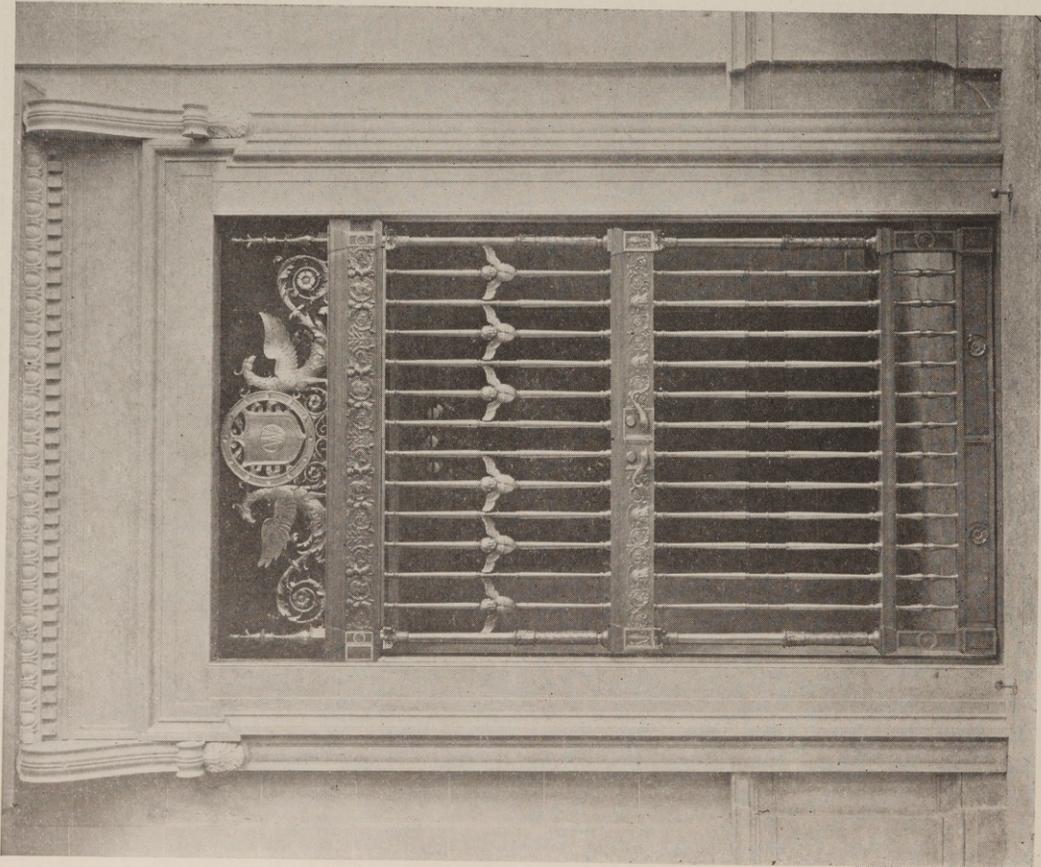
MAIN ELEVATION
WAYNE NATIONAL BANK, GOLDSBORO, N. C.
ALFRED C. BOSSOM, ARCHITECT.



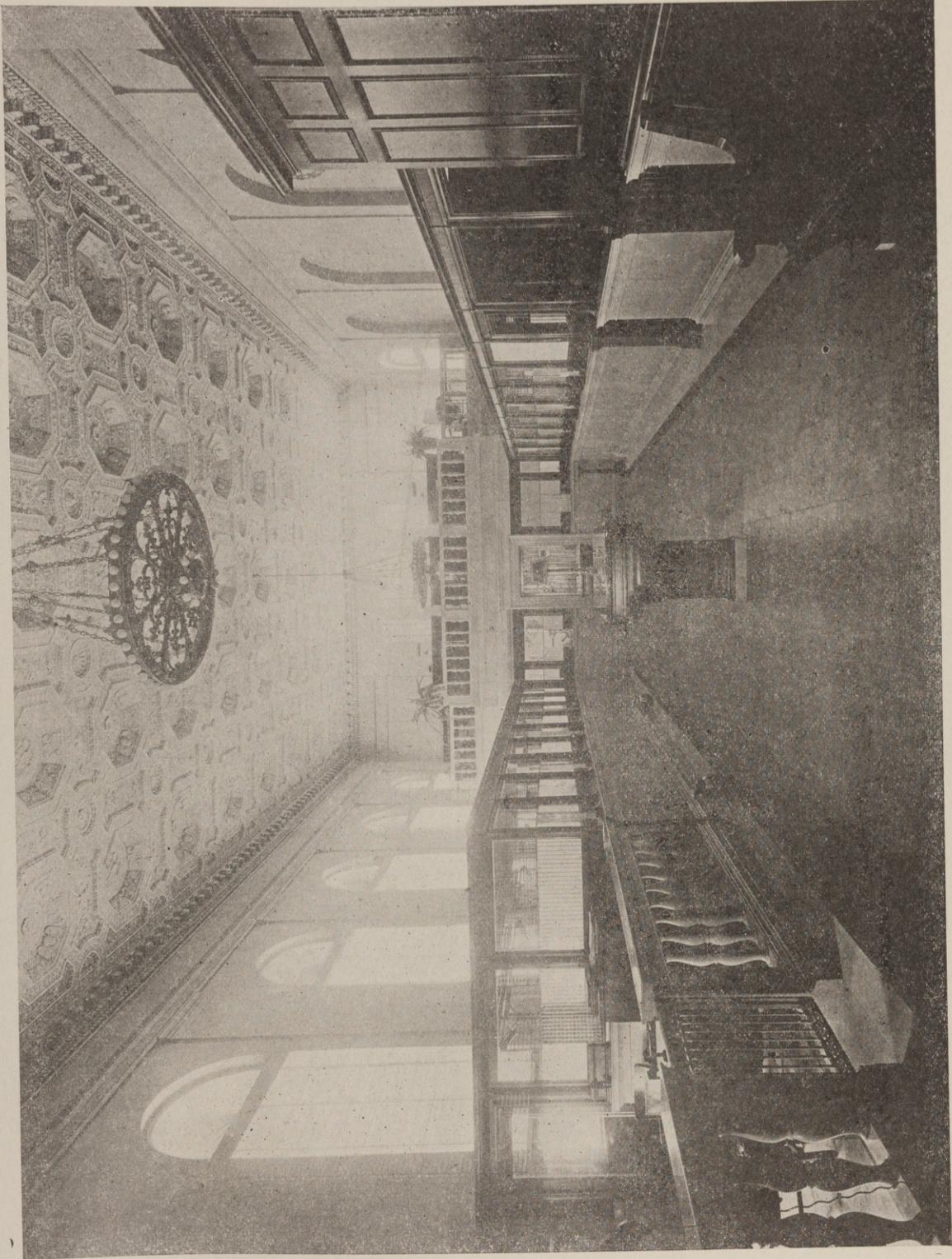
DETAIL OF BRONZE DOOR.

WAYNE NATIONAL BANK, GOLDSBORO, N. C.

ALFRED C. BOSSOM, ARCHITECT.



DETAIL OF GRILLE DOOR.



MAIN BANKING ROOM.

WAYNE NATIONAL BANK, GOLDSBORO, N. C.

ALFRED C. BOSSOM, ARCHITECT.



SECURITY BUILDING, MEMPHIS, TENN.
McKIM, MEAD & WHITE, ARCHITECTS.

A Glance at the 1924 Office Buildings

By THOMAS FRANKLIN.

A strict analysis of the Southern office building progress of 1924 would entail the compilation of a list of figures resembling the German war debt as stated by a fervent Frenchman. And such a compilation would be as dry as the ashes of Dante's *Inferno*; whereas, a discursory review will prove as informative and enlightening, and far more digressive. In truth, the story is almost completely told in pictures.

The economic progress begun in the South shortly after the war, and only slackened by the advent of the boll weevil, continues with even greater impetus, following the farmers expensively gained knowledge in crop diversification and a material increase in cotton production.

Those nearer markets—the small cities—are reaping their share of the agricultural districts progressions and, in many cases, putting the profits in office buildings rivaling those seen yesterday in the larger business centers, while the progressions in the larger cities are proportionate. Shreveport completes a \$300,000, seven-story store and office building, planned by Joseph Finiginer, of Houston, and Seymour Van Os, of Shreveport, associate; and Atlanta completes probably the South's largest strictly office building structure, the Hurt Building. Jackson, Mississippi, has completed the Lamar Life Insurance Company's towering ten-story,

\$560,000 building, planned by Sanguinet, Staats and Hedrick, of Fort Worth, and N. W. Overstreet, of Jackson, Associate; and Richmond raises a \$1,000,000 edifice—the State Office Building, designed by Carneal & Johnston, John T. Wilson & Company, supervising contractors, and James Posey, of Baltimore, consulting engineer. In Ashland, Kentucky, the Ashland National Bank has secured the services of Schenck and Williams in planning a notable small city office; and Baltimore reports the beginning, with Graham, Anderson, Probst and White planning and George A. Fuller Company building, the Citizen's National Bank Building. Whereas the past year showed the small

cities forging ahead proportionately speaking, of course, in office building construction, 1924 finds the larger cities keeping pace, but with, possibly, a small balance remaining with the smaller cities. The heralded, analyzed, and discussed building progressions, in every phase of construction, of 1923, continues unabated despite the adversities of a presidential election year.

One of the most notable constructions in the entire South during the year was the immense, and architecturally beautiful, Birmingham Age-Herald Building, Birmingham, Ala. It is reputed the tallest structure in the South, and is probably the only really modern newspaper office in the section.



SLATTERY BUILDING, SHREVEPORT, LA.

MANN & STERN, ARCHITECTS.

When a constructive newspaper adopts modern business housing methods it will wield an influence towards that end throughout the territory of its circulation.

Office building in North Carolina and Florida cannot be justly assigned to the prevailing rule nor to the small-city large-city ratio. Both states are going through a financial, business, and building inflation, or revolution, that is noteworthy. North Carolina boasts that good roads, and a sand bar which prohibited Wilmington becoming a large seaport city, destroy the necessity of large cities, forcing a community development of phenomenal proportions and idyllic characteristics. But the accumulation in the state of wealth and commerce will make large cities a necessity. It is inevitable And another Utopian myth shall topple. Greensboro, N. C., is even now viewing the spectacle of seventeen rising stories, costing the Jefferson Life Insurance Company \$2,000,000 dollars and occupying an entire block. Asheville, the summer resort, is fast realizing her desire of becoming a year-round city. Several small office structures have been completed during 1924. Ronald Greene's plans of a large tower construction saw completion during the latter months of 1923 or early this year. Winston-Salem, Raleigh and Charlotte have contributed buildings of magnitudes proportionate enough to enable the community development advocates to argue that the large city will not assume dictatorial proportions. Where the balance of power will eventually fall is problematical, but just now Greensboro, with the aforementioned \$2,000,000 edifice is making a strong bid for the predestined centralization point. Of course, eventually location, the fibre of a citizenry, leadership, fertility of soil, and undeveloped resources will concentrate money and masses; and North Carolina will face the problem now occupying Georgia, which has Atlanta dominating its progress in building and every factor of Georgia life; Alabama, which is dominated by Birmingham; and Louisiana



FIRST NATIONAL BANK, MIAMI, FLA.

MOBRAY & UFFINGER, ARCHITECTS.

by New Orleans.

And Florida. Florida is again the land of gold and fabled wealth the Spanish invaders sought. In a way, and speaking in proportionate measures, Florida lay dormant during the first four hundred years following De Soto's discovery. The old world adventurers allowed their imaginations to convert the Peninsular State into an unemboweled treasure chest. They fought over it, were disappointed by contact with the enveloping realities, and threw it aside. And not until the later end of

the nineteenth century did the patient Anglo-Saxon discover the real values conjured by the amusing conquistadors. There has followed another rush such as California saw in the days of '49. Now the "gold rush" is at its height. The population of the state is increasing—according to Chamber of Commerce reports—about two millions a year. East Florida, West Florida, South Florida, North Florida—a whole state is undergoing the process so often viewed in an American suburb real estate development. Strange, hitherto unsuspected ingenuity is brought to the formulation of constructive legislation to benefit every class of investor and artisan. The architects and builders, always first and necessary factors, are reaping their share of the "gold rush's" first full pannings. Miami, Jacksonville, West Palm Beach, St. Petersburg, Tampa, Lakeland, and Orlando are, in the order named, roaring with the continuous rap of the steel riveter's hammers. Office buildings small and large, are rising skyward with comet-like rapidity. I do not exaggerate, nor bally-hoo for Florida. Money has been poured into the coffers and is leaking through a faulty bottom, and a mad crowd scramble for it. The hegira is at its height.

To illustrate, I'll have to desert the office build-

ing field and consider the entire building industry. And this is the only possible way to view these new cities where the office buildings are small but numerous.

In 1921 Miami's building total was \$5,415,800. By August of 1924 this figure had been doubled—\$12,418,224. Jacksonville's total for the first eight months of the year totaled \$5,780,079. A few years ago such a total for an entire year would have caused the citizens to declare days of thanksgiving and burn up all the available debris in joyful bonfires. And West Palm Beach, yesterday a suburb of fashionable Palm Beach, has, during the first nine months of 1924, piled up a building total of practically \$4,000,000. Figures on other towns and cities are easily available, and I said in the beginning this article should not contain too many numerical computations. The answer is easy. Northern capitalists have discovered they can build at a much lower rate, due to climatic conditions, availability of materials, and, the big item, cheap labor. Native Floridians have been quick to realize their opportunities and are not only taking advantage of them, but enhancing their value and increasing their number.



SKYLINE, HOUSTON, TEXAS.

Development of American Practice in Reinforced Concrete

By Robert D. Snodgrass,

Chief Supervising Engineer, Truscon Steel Company.

DEVELOPMENT of American practice in reinforced concrete is a story that illustrates in a remarkable manner the wide difference between American and European engineering methods. It marks, as well, the ingenuity of our American engineers in adapting a new idea to our domestic requirements.

The type of construction which combines concrete and steel—so that the two act together as a unit and provide safe load bearing members—was first developed in Europe. Its use was not seriously considered here until many years later. We did not begin to realize its possibilities until the early years of this century. The probable reason is that it has only been within the last thirty years that we have been producing sufficient portland cement of the grade necessary in reinforced concrete construction.

Our first reinforced concrete designs naturally followed French and German precedent, but it was soon realized that this did not suit American construction methods. Our wage rates, being high, necessitate the use of methods which reduce the labor item to a minimum, even if this means slight increases in material quantities. The European builder, operating with cheap labor and without the same speed required by American practice, finds it economical to save material at the expense of labor. Consequently, European engineers go in for the greatest refinements in their design and, in order to reduce material cost, give comparatively little attention to standardization of forms or reduction of bending and handling costs which are so vital to us.

At the time we began to build in reinforced concrete, we were well equipped with mechanical means for handling large volumes of concrete materials. But the use of these mechanical adjuncts resulted in less careful inspection of workmanship and the consequent danger of a less satisfactory finished construction. We, therefore, were obliged to assume more conservative working stresses than those accepted by European practice. In order to insure a perfect bond between concrete and steel, the necessity of bonding and hooking the bar ends became more important than if we had been proceeding with slower and more painstaking methods.

Existence of this condition was the incentive that led to the invention of the deformed bar. The plain bar used in Europe required long imbedment or hooked ends to insure against slipping. The de-

formed bar, being one with irregularities or projections rolled on its surface, could not slip through the concrete. Its use made it unnecessary to work mixture to a degree that would produce the maximum adhesion between steel and concrete. The deformations made possible a continuous and more rapid transfer of stress from concrete to steel, thereby providing, not only a safer construction, but a more economical one in both labor and materials, by the elimination of hooked ends, and by reducing the necessary amount of embedment.

By far the greatest amount of labor used in bending and placing reinforcing steel is applied to the stirrups. These consist of small cross-section bars, usually bent in U-shape, spaced at varying intervals along the main reinforcing bars and placed with the legs of the U either vertical or inclined at an angle of 45 deg. This is an extremely expensive operation requiring that each individual stirrup be not only wired to the main reinforcement, but that each be securely held in position while heavy loads of concrete are being placed around and over it. This operation is a difficult one and requires constant and careful inspection to insure safe construction.

Perhaps the most notable achievement in reinforcing bar was the production of bars designed to meet this condition. A number have been developed which not only mechanically space the stirrups, but almost entirely eliminate the field labor of bending and wiring. This has been accomplished in a variety of ways: one, by welding the stirrups directly in the main reinforcing; another, by pressing the stirrups into the sides of bars which are specially designed to permit this; a third, by clamping the stirrups in position, and a fourth, by the production of a specially rolled bar, having two horizontal flanges or wings projecting on opposite sides. These flanges are sheared up at intervals to form rigidly connected diagonals, making a unit of the main bar and the shear reinforcement. Use of this bar saves the labor of placing eight to ten pieces. The bar and its attached shear members is laid in one operation. Instead of making from four to six bends, the sheared diagonals are merely pulled up (a very simple operation) and the labor of wiring and the expense of rigid inspection during pouring are entirely eliminated. At the same time, the accuracy of spacing is absolutely assured, and the connection between the main and shear reinforcement is a

positive one that insures the proper distribution of stress.

Another development that aids in saving steel placing labor is the use of bars assembled into mesh. There are many of these in use which makes it possible to lay large areas of slab reinforcement in one operation. Many of these meshes fabricated from small size bars are shipped in rolls so that spacing can be done by setting a roll at one end of a building, fastening the end and unrolling over the forms. The labor saved by this, as compared with placing and tying single bars one at a time, is a considerable item.

No better example of American ingenuity can be found than that displayed in solving the concrete form problem. Lumber is becoming increasingly more expensive year by year and, consequently, the necessity for substitutes more important. While this branch of the art of reinforced concrete has progressed more slowly than the development of labor-saving reinforcement, nevertheless, a very important step in this direction was made in the early days by the introduction of what is variously known as Hy-Rib, self-centering Ribplex, or core mesh, depending upon the manufacturer. This reinforcing material is formed from steel sheets into which V-shaped ribs $\frac{3}{4}$ inch high are rolled and the metal between is slit and expanded forming a mesh. The ribs are used as reinforcement but are also stiff enough to carry the load of the wet concrete until set. The mesh between the ribs is sufficiently fine to prevent the concrete from flowing through. This combined reinforcement and centering is used most economically for thin slabs and light loads, and is especially adapted for use over structural steel beams spaced from 4 feet to 8 feet, center to center.

Our first concrete structures, following European practice, were of the well-known beam and short span slab type, supported in turn by concrete girders. For certain classes of buildings this is not objectionable, but for office buildings, hotels, schools, hospitals and even for certain classes of factory buildings, a flat ceiling between beams is desirable. In long span construction the thickness and, consequently, the weight of solid slabs increases enormously as the span lengthens. The possibilities, therefore, for using these on long spans are very limited.

Efforts have been made to provide economically for this type of ceiling. The first embodied the use of rows of hollow terra cotta tile block spaced from 4 inches to 6 inches apart. The reinforcing steel was then placed in the spaces and concrete was poured between and over the tile to the required depth, forming a series of concrete T-shaped joist,

the tile acting as fillers to produce a flat ceiling. Use of this terra cotta (weighing only about one-quarter as much as the concrete replaced by it, and costing only one-half as much) makes it possible to construct longer spans to do so at very much less cost. The concrete eliminated merely added to the dead weight without having any structural value. The economies effected by the use of tile and concrete slabs are not confined to slab alone. The reduction in dead weight also makes it possible to use smaller supporting beams, girders, columns and column footings. The last is extremely important where foundations are bad.

For a number of years the cost of mixing and placing concrete has been growing at a rapid rate. A comparison with the cost of 1910 shows an increase of about 270 per cent in most parts of the country. During this period structural steel, which is the principal material in competition with reinforced concrete, although subject to wide fluctuations, has had nothing like the same increase. This has made the question of cost reduction in reinforced concrete methods an extremely important one. The three principal elements entering into concrete construction are reinforcing steel, concrete and form work. In an average building the relative percentage of each of these items is 19 per cent, 39 per cent and 42 per cent, respectively. In each of the last two, labor plays an important part. It has, therefore, been absolutely essential for the concrete designer to reduce these to a minimum if reinforcing concrete is to maintain a leading position in fire-proof construction.

As usual, it has been the manufacturer, vitally interested in the sale of his products, who realized the seriousness of these conditions and took steps to remedy them. His first efforts were directed toward saving in concrete materials. The use of terra cotta tile, while intended primarily to produce long span flat ceilings, helped. But the first real step in economy was made by the development of metal tile. This consisted of pressing corrugated sheet steel into an inverted U-shaped form about 21 inches across the base and varying in depth from 4 inches to 14 inches. The metal tile thus formed are placed on the forms in rows with the ends slightly lapping. These rows are set from 4 inches to 6 inches apart and concrete is poured between and over them to the desired depth. The effect of this is to produce a long span slab in which the metal tile eliminates all the unnecessary concrete below the neutral axis, leaving only the minimum amount in the joints between the tile necessary to provide for shear, and to develop the reinforcing steel.

The first efforts at the production of this metal tile were not entirely successful, in that the flat tops,

which were about 19 inches wide, sagged under the weight of the concrete over them, thereby requiring more concrete than desired. This was remedied, however, by increasing the depth of the corrugations and also by pressing deep V-shaped ribs crosswise into the top tile. This latter form produces an unusually stiff tile and saves from $\frac{1}{2}$ inch to $\frac{3}{4}$ inch of concrete per square foot over that required with many other types.

Steel tile is now widely used and is particularly well adapted for slabs in schools, hotels, apartments, hospitals, residences and other lightly loaded buildings where flat ceilings are essential. The flat ceiling is attained by placing specially designed metal lath across the bottom of the joists. This lath is designed with $\frac{3}{8}$ -inch hy-ribs to provide a stiff plastering surface for spans from 16 inches to 24 inches.

Simultaneously with the development of long span metal tile slabs, another type of construction designed to produce economies in heavily loaded buildings began to appear. This is the widely known solid concrete flat slab design, consisting of concrete slabs of uniform thickness, supported at the columns only by flaring column heads and by increased slab thickness around these column heads. This construction does not obtain its economy by saving in concrete. On the contrary, it slightly increases the quantities of this material necessary over an ordinary beam and slab design. But the simplification of form work is enormous and a large part of the ceiling, being flat, permits building the forms in units which can be used over and over again, either on the same or on other floors. At the same time metal forms for use in columns and in flaring column heads began to be used. These forms are rented by the manufacturer and are used so many times that the amount represented in manufacture and material for each using is extremely small. To appreciate the actual economy in this construction, its relation to other trades must be studied.

Any other type of construction requires deep supporting beams which cut into the head room. A flat slab, having no beams to reduce the clear story height, cuts the distance from floor to floor substantially. In a building of six to eight stories, this reduction may amount to four feet or five feet. The quantity of brick work in the walls and partition thus saved must be counted. Furthermore, in factory buildings, warehouses and store buildings, where sprinkler systems, heating pipes and wire conduits are carried along the ceiling, the passage of these through or around beams adds greatly to the cost. The same economies are obtained under flat slab ceiling where shafting is required. It also has the advantage of being a construction in which the window heads may be placed close to the ceiling, thereby permitting the maximum amount of light. Furthermore, a very presentable and inex-

pensive ceiling finish may be obtained by simply rubbing down the concrete.

In spite of its many advantages, the large quantity of concrete used and consequent dead weight remained a disadvantage. In this type of construction the maximum stresses occur over the column head and these regulate the slab depth. At the panel center and midway between the columns, the stresses are much less, requiring considerably less concrete. No design is perfect that does not provide economical use of materials. However, a modified slab is now in use which largely overcomes this objection. This new arrangement uses steel dome-shaped tile where the stress is at a minimum. These tile divide the center of the panel into series of intersecting joists running parallel to the column lines and at right angles to each other. The domes are removable and consequently may be used over and over again, resulting in a low cost per dome per using. The adoption of this design lessens the amount of concrete required per panel over that used in an ordinary flat slab design, by about 35 per cent. In addition to the concrete saving, there is a very substantial reduction in the dead weight which also reduces the cost of both the footings and columns. This combination of concrete and domes produces a very decided reduction in both labor and material and consequently is an unusually economical floor construction.

As lumber costs continue to increase without any definite limit in sight, the problem of reducing centering costs is becoming increasingly important. The apparent solution seems to be the substitution of steel forms. Since these, however, must be factory built and consequently of high first cost, their economic use requires standardization of design so that the same form may be used many times over. There are many styles of steel forms now in use.

The latest development along these lines almost entirely eliminates wood in form construction. Where a steel deck only is provided, wood supports and braces are still unnecessary. However, a new design, consisting of steel form units which center both slabs and beam sides, is now in use. In this system the beams are reinforced by a combination of bars and steel I-beams. The top flanges of these beams are shown and the members thus formed are bent up to 45 deg. to insure a perfect bond with the concrete. The beam bottoms are formed from steel plates and are suspended from the I-beams so that shoring from the floor below is unnecessary, except, possibly, at the center of each beam. The beam bottoms are flanged on the sides so that they in turn support the steel slab and beam forms.

This form system is sufficiently elastic to meet the majority of conditions encountered in ordinary building construction and owes its economy to the

fact that the forms may be used on many consecutive building jobs without alteration or change. Its economy is apparent when it is remembered that at the completion of a job centered in wood, the greater part of the lumber used is useless thereafter, even for fire wood. Development along these lines will eventually entirely eliminate the use of wood, if this material continues to increase in cost as it has in the past ten years.

The high cost of lumber has resulted in still another substitution of sheet steel for wood. Joists rolled from strip steel in the form of I-beams and channels have been on the market for a number of years. It is, of course, impossible to substitute this material, joist for joist, at an equal cost in finished construction. But a steel joist is stiffer and better adapted for carrying loads so that it may be spaced at greater centers. Furthermore, where wood joists are used, the floor finish can only be wood, whereas with steel joist over which metal lath is placed, any kind of floor finish desired may be applied.

When a cement finish is desired with steel joists, 2 inches of concrete is poured over the lath and the top surface is dressed up to the desired finish. When wood finish is required, sleepers are attached to the joists, either by nailing or by specially designed clips. The space between the sleepers is filled with concrete and the finished floor is nailed to the sleepers in the usual way. Wood flooring is one of the materials which have increased enormously in cost during the last fifteen years—300 per cent does not come far from representing the amount of change during this period. In fact, the cost of flooring is

so high that it is possible to build a floor of steel joists and metal lath with a 2-inch cement finish and a metal lath and plaster ceiling at less cost than a double wood floor over wood joists and a metal lath and plaster ceiling. In other words, the use of steel joists make it possible to provide fire-proof construction for light occupancy buildings at less cost than that of non-fireproof wood joist construction. This fact is producing great changes in the design of schools, hospitals, apartments, hotels and even in high class residences.

The effect of reinforced concrete on factory construction has been remarkable. Twenty years ago it was customary to provide heavy brick piers with comparatively small window openings. Many examples of this kind of factory can be found especially through the Eastern states. Today, because it is possible to carry very heavy loads on small reinforced concrete columns, practically the whole side of a factory is available for lighting the building. The development of steel windows with their large lights, and reduced number and size of mullions has also aided substantially in increasing the light on factory floors as well as improving the ventilation. The factory of today is a bright, cheerful, well ventilated place, instead of the dark, dismal, unhealthy place of the past.

Reinforced concrete has made wonderful strides in the past twenty years, but there is still much room for improvement and there can be no doubt but the next twenty years will show as many and as important changes as in the past.—American Builder.



SKYLINE OF FORT WORTH, TEXAS.



MAIN ELEVATION

101 MARIETTA STREET BUILDING, ATLANTA, GA.

BURGE & STEVENS, ARCHITECTS.

Office Buildings Design from the Standpoint of the Operating Owner

By C. F. Palmer, President Palmer, Inc., office building owners and operators, Atlanta, Ga. Mr. Palmer is also a past President of the Southern Conference of Building Owners and Managers,, comprising the thirteen Southern States

Broadly speaking architects design but two classes of office buildings. The first class, and to date by far the larger class, is that group of structures erected as monuments to various corporations or individuals. The second class is the building for business, an investment venture undertaken for dividends.

This article will not touch on the first or monumental species. Such a type often includes operating devices of costly maintenance, ill construction, etc. However, these mistakes in design effect but little the ultimate satisfaction to the owner who has built primarily to perpetuate a name on a structure of impressive proportions. If the building is monumental in appearance he is pleased. Dividends he does not expect.

The building for business from which the owner expects dividends is the only one within the scope of this article. Design furnishing proper and economical operating facilities manufactures good

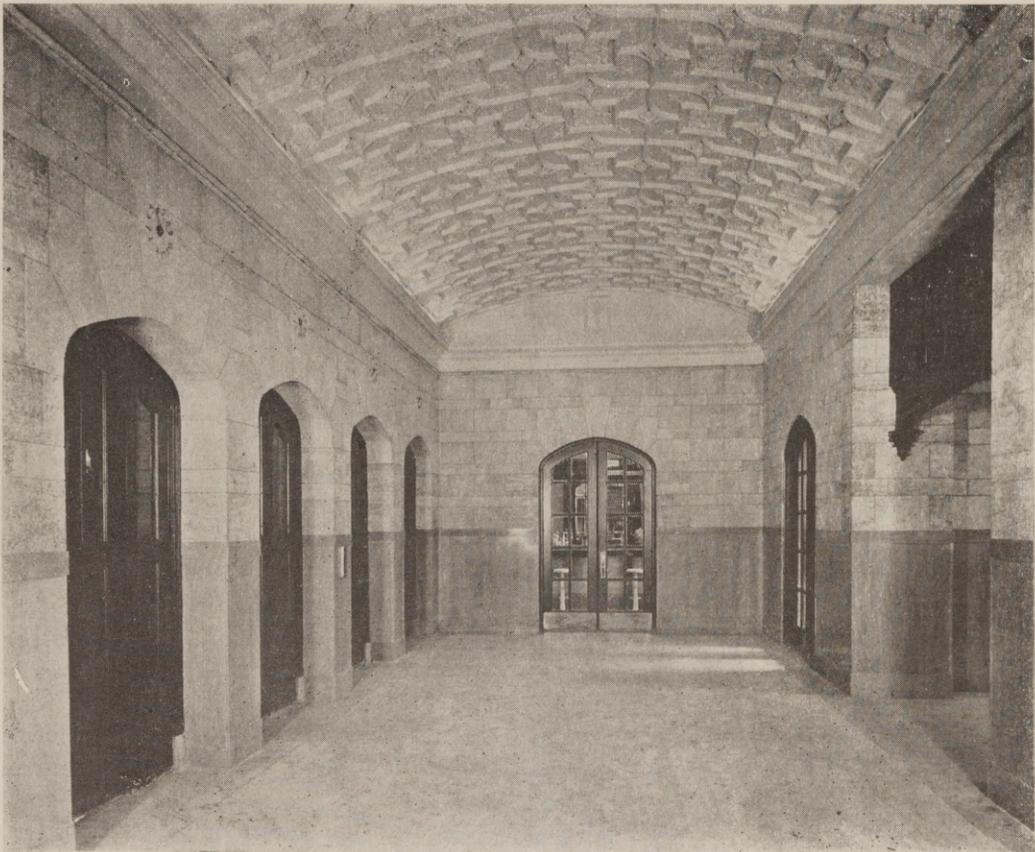
service to the tenant. Good service to the tenant manufactures dividends for the owner.

EXTERIORS.

There should be hydrants in front of the stores to allow the washing of sidewalks. The pilasters of the structure, if it is so high that large columns are required, should be set back from the property line at least eight to twelve inches to allow the construction of the show windows in such a way that no large structural member will come between store divisions to rob display window space. This of course applies only where the ground floor is to be used by retail shops.

Points such as above are really operating points because the tenant cannot conduct his business profitably without adequate show windows. If he cannot conduct his business profitably he cannot pay his rent. No rent effects the owner's dividends. Anything effecting dividends comes under operation.

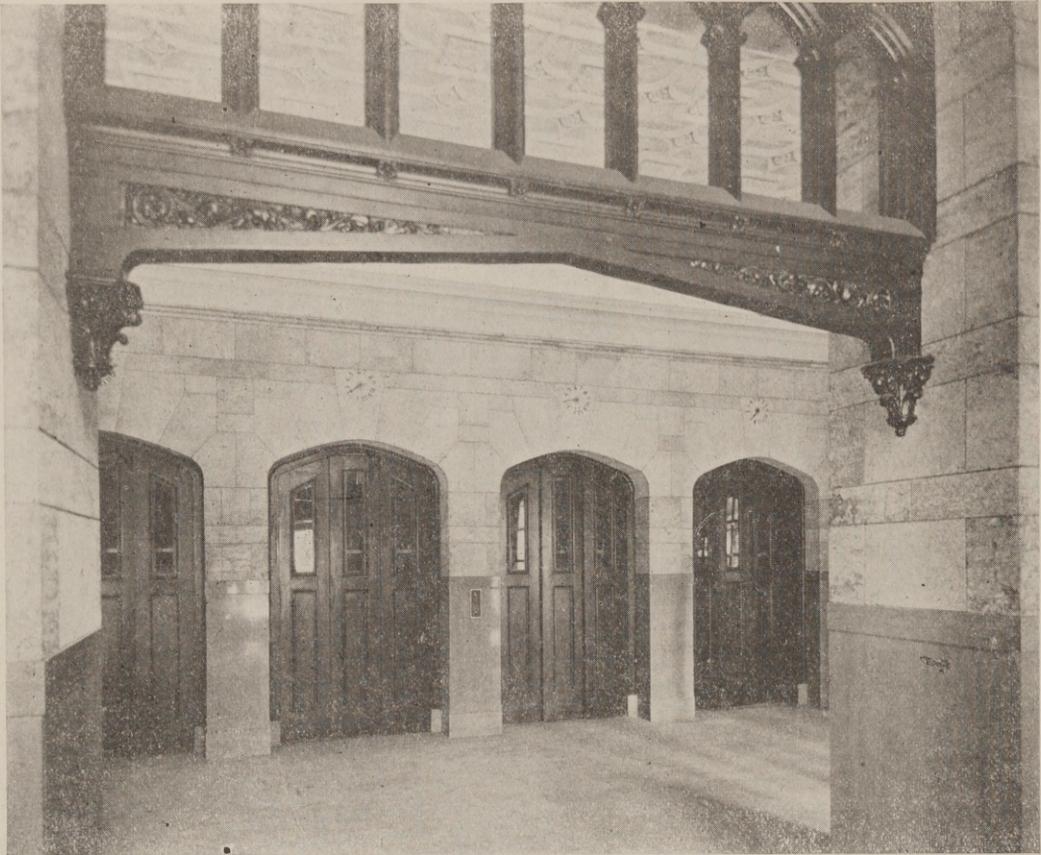
The base of a building should be of some "non-



VIEW OF LOBBY.

101 MARIETTA STREET BUILDING, ATLANTA, GA.

BURGE & STEVENS, ARCHITECTS.



VIEW LOOKING TOWARDS ENTRANCE TO ELEVATORS.

write-on-able" material wherever such base can be reached by the public. This also applies throughout the corridors and toilets wherever the structure is accessible to the general public. A polished, non-absorbent stone is preferable.

All over-hangs should have well defined and proper drips to prevent rain from streaking the building, making frequent cleaning necessary.

Windows should be equipped with safety hooks for the life belts of the janitors and sash cords should be of chain and easily accessible.

Vertical lines facilitating water shed help to keep a building from soiling. On the first floor wherever steps can be replaced by ramps a material benefit accrues. The public wears out stair treads rapidly. Ramps into stores from the street add to the rentability as the buyer dislikes to lift his foot.

No awnings should be allowed above the first floor. They are a fire hazard from cigars and cigarettes thrown from upper windows. Atlanta has passed an ordinance prohibiting their use in the fire zone of the congested district. They are difficult to maintain. The tenant can get equal comfort from Venetian Blinds on the interior of his windows or from adjustable window shades that slide up or down on a rod at each side of the window, allowing good ventilation without exposing the occupant of the office to the sun.

ELEVATORS.

Elevator enclosures on each floor, that is the gates and grill work or corridor wall at the elevator entrance, should be such that the maximum of visibility is afforded the operator to see if prospective passengers are approaching.

Self closing doors are an asset. They increase speed of operation, as the door can be released and the car will start as soon as the safety contact or interlock is reached, providing the system is so equipped. These contacts prevent the car from moving until the door is within four inches of a closed position. Over ninety percent of elevator accidents happen at the doors and this device absolutely prevents them.

Proper speed for a car helps economical and efficient operation. It is as great a mistake to install a car of too great speed as it is to install one of too slow speed. Neither does the work. A six hundred foot per minute car cannot be used with satisfaction in a three story building any more than a two hundred foot car is proper for a ten story structure. The speed of the car increases the current consumption almost in geometrical proportion which means the operating cost is correspondingly increased. Elevators of high speed are of little use unless for express service because they cannot reach their maximum efficiency with floor to floor stops.

(Continued on page 72.)

The Hurt Building, Atlanta, Ga.

HUGH TALLANT
REALTY CONSTRUCTION Co.

WITH its cornerstone grounded upon the faith of its builder in the future greatness of Atlanta as the metropolis of Dixie, the mammoth Hurt building, completed at Edgewood avenue and Exchange place, stands as a monument to the progressiveness of this city and the commercial enterprise of the southern states.

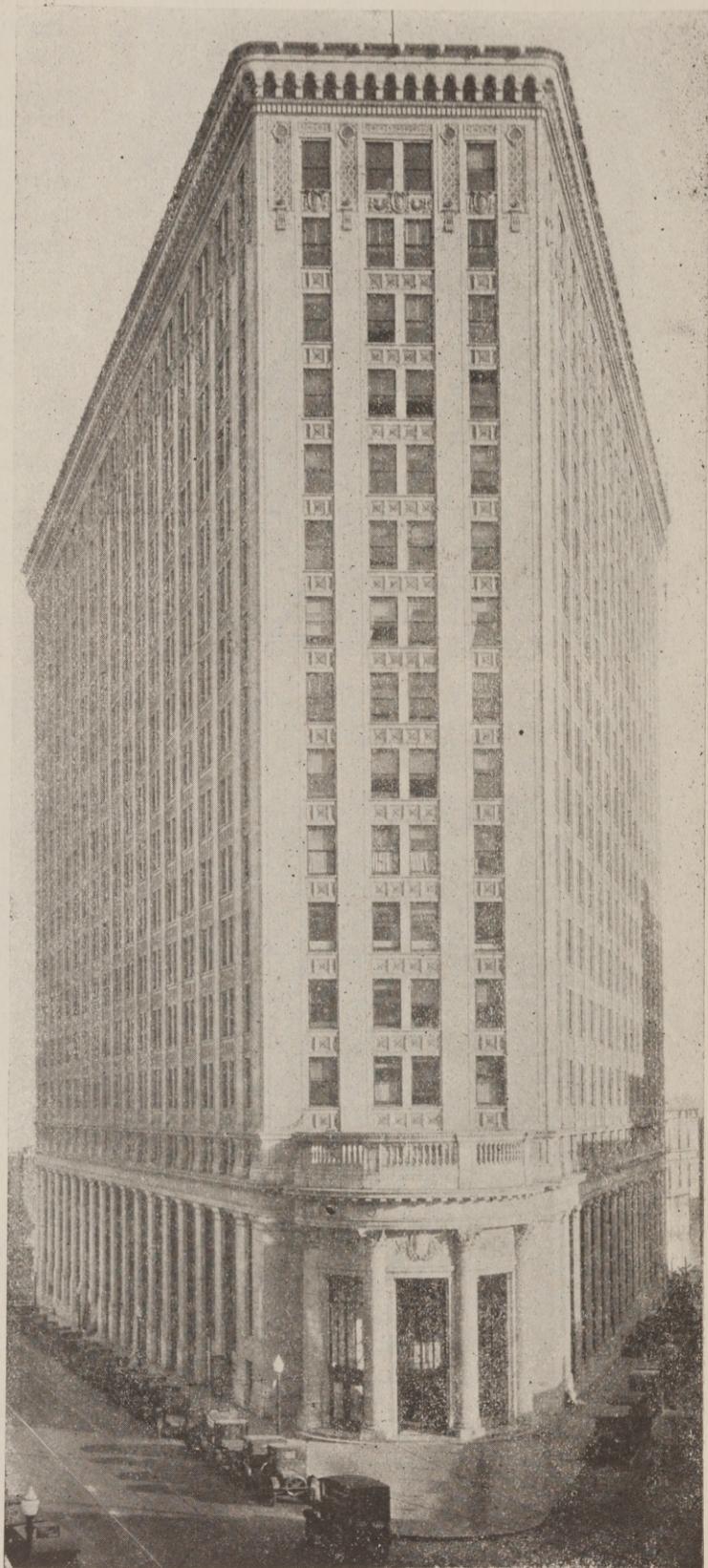
The first unit of this splendid structure, completed a little more than a decade ago, is looked upon as the realization of a vision of Joel Hurt, Sr., pioneer developer and capitalist, who headed the Atlanta Realty corporation. This organization, under the leadership of Joel Hurt, Jr., president, and S. L. Hurt, vice president, has now added to the original structure two mammoth wings that cover the entire triangle, bounded by Edgewood avenue, Exchange place and Ivy street, and is the largest and most magnificent commercial structure in the southern states.

It stands 17 stories high and is one of the handsomest business buildings among Atlanta's 50 or more skyscrapers. This building is of modernesque design, and of unusual beauty. The building, in its appointments, as well as its exterior appearance, is highly modern in every way, and the mammoth addition formed by the two wings is a duplication of the original structure, except in matter of slight improvements that have been made in office building practice since the first unit was erected.

The facade of the Hurt building, which presents one of the most attractive vistas perhaps to be seen in the uptown district of Atlanta, emphasizes the beauty of its architectural type. Standing upon a three-sided site the architects have taken full advantage of the triangle to develop an ensemble that has been commended for its beauty by many critics.

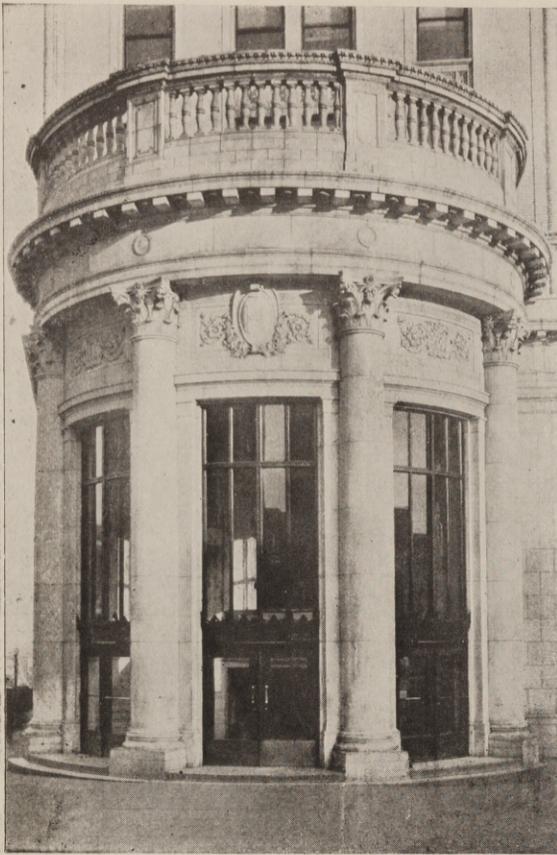
The mammoth size of the Hurt building, with its completed wings, may be envisioned by taking into consideration the great area covered by its eighteen floors. Taken together these floors will contain 425,000 square feet of rentable space and the structure will accommodate a total of 20,000 people.

The Hurt building is located less than



MAIN FACADE SHOWING ENTRANCE AT EDGEWOOD AVENUE AND EXCHANGE PLACE.

Photos by Edgar Orr.



ENTRANCE DETAIL

two blocks east of "Five Points," and within three blocks of every bank in Atlanta and of the Post Office, Court House, State Capitol, City Hall, Auditorium-Armory building, and every other important office building in Atlanta.

The Hurt Building and the Trust Company of Georgia Building, immediately across Edgewood Avenue from the Hurt Building, contain one-fifth of all people doing business in offices in Atlanta, including 85% of all insurance offices in Atlanta.

Immediately across Ivy Street is the new and only large, modern and fireproof garage, of six stories, with capacity for 1200 cars on storage, and offering all types of service needed by the car owner.

The difficulty and lack of satisfaction in finding a place to park in down-town Atlanta makes this a big convenience to the Hurt building tenants—in fact, there is no other office building in Atlanta where such a number of cars can be parked across the street.

Aside from the attractions found in connection with the location of the Hurt Building, many conveniences inside this structure make it a most desirable place for those seeking offices.

It is equipped with more elevators per capita than any building in Atlanta. Sixteen high-speed elevators, one of which is oversized for use on



DETAIL OF STAIRWAY LEADING FROM ENTRANCE VESTIBULE TO SECOND FLOOR
OFFICES OF THE CONTINENTAL TRUST COMPANY.

freight service, run in groups of four cars to the bank. Bank A operates express first to twelfth floors, and local from twelfth to seventeenth floors.

Bank B operates express first to eighth, and local eighth to twelfth.

Bank C operates local first to eighth.

Bank D, including the freight elevator, operates local to all floors.

This arrangement assures all tenants the best type of this very vital service.

In the matter of improved electrical installations, the entire building has been changed over from the former direct current to alternating current, and that with the additional service provisions made possible by the Georgia Railway & Power Co., the tenants of the mammoth Hurt building will never be completely cut off from light and power, no matter how severe might be the electric storm and other elemental disturbances that often interrupt service.

For the ladies in the Hurt Building there has been equipped a large modern toilet, washroom and rest room, with maids in attendance to keep the place clean and to administer to their wants—an ideal place for lunches to be eaten, on bad days, and for ladies to lounge in case they are feeling in-

disposed. Several thousand feet are devoted to this beautifully equipped suite. In the building are barber shops, soda founts, telephone and telegraph booths, drug store, office supplies, and many other things that the tenant needs close at hand.

No heating or electric plant is located in the building to cause smoke nuisance or unnecessary noise.

Nothing can be of more vital importance than the safety of the business home and records from fire, to say nothing of one's own personal safety.

The Hurt Building well deserves the .12 fire insurance rate it carries, which rate is the lowest of any office building in Atlanta. The steel structure is encased in concrete and tile; the floors are of non-burning material; the corridor walls are of tile and asbestos-covered wood trim; the corridor glass is wired glass, and all outside windows above the 11th floor are of metal and wired plate glass.

Three 5" standpipes have openings on each floor.

Steam for heating comes from an outside source. The possibility of damage from large boiler fires is eliminated.

Two complete and separately located metal



DETAIL OF TOP ELEVATION AND CORNICE.

stairs, in individual fireproofed wells, entered through metal doors, provide two safe methods of exit.

The sixteen elevators are in two separate fire-proof wells, with metal and wired plate glass doors. Either of these two wells is a safe method of exit.

The building has no fire menace from adjoining structures, as it occupies the entire block on which it is located.

The first section of the Hurt Building has, for more than ten years, been handled by its owners, with the thought in mind that no other management would feel the keen interest in its tenants and the service afforded them. This service has built quite a reputation for the Hurt Building, and it will continue as before and be improved upon from time to time when possible.

No better elevator service can be found. Sixteen machines were installed when only twelve machines would have done.

Nothing has been overlooked in the mechanical service, such as water, lighting and heating, the most modern equipment being used. Electric current is supplied from three outside sources, any one of which will operate the entire building.

The janitor service has the closest attention of the management.

The fact that more than 20,000 feet of rental space can be had on a single floor in the Hurt Building is a decided attraction to the tenant that expects to grow and who realizes the fact that it is easier and less interruption to move while small.

ARCHITECTS CONTRIBUTING TO THIS EDITION.

Carneal & Johnston	Richmond, Va.
Clyde N. Friz	Baltimore, Md.
McKim, Mead & White	New York, N. Y.
Marr & Holman	Nashville, Tenn.
Barglebaugh & Whitson	Dallas, Texas
Boyer & Baum	St. Louis, Mo.
Alfred C. Bossom	New York, N. Y.
Schenck & Williams	Dayton, Ohio
Mann & Stern	Little Rock, Ark.
Mobray & Uffinger	Miami, Fla.
Burge & Stevens	Atlanta, Ga.

The Office Building Taxation Problem

By FRANK WELDON.*

Office buildings being the most conspicuous objects in a city, naturally impress the tax assessors and the public as rich sources of revenue. To the average citizen, almost any office building "looks like a million dollars"—whether it cost half of that sum or five times as much.

The policy of "ability to pay," which is strongly urged by a large school of students of the tax problem, has few friends among municipal tax assessors.

If a building cost \$1,000,000, or would cost that much to reproduce it, \$1,000,000 is usually taken as the basis for taxation, even though the property may have failed to make operating expenses. I have in mind a large office building the operation of which last year cost \$20,000 more than the rentals. That did not deter the assessors from jacking up the assessment something like \$200,000, which automatically increased the 1924 taxes—city, county and state, 2,500.

When a city needs more money, central property has to furnish most of it.

Recently, I asked a tax official why the assessment of residence property was not increased in the same proportion that central property had been increased.

"Because that would start a revolution," he replied.

There are probably 2,000

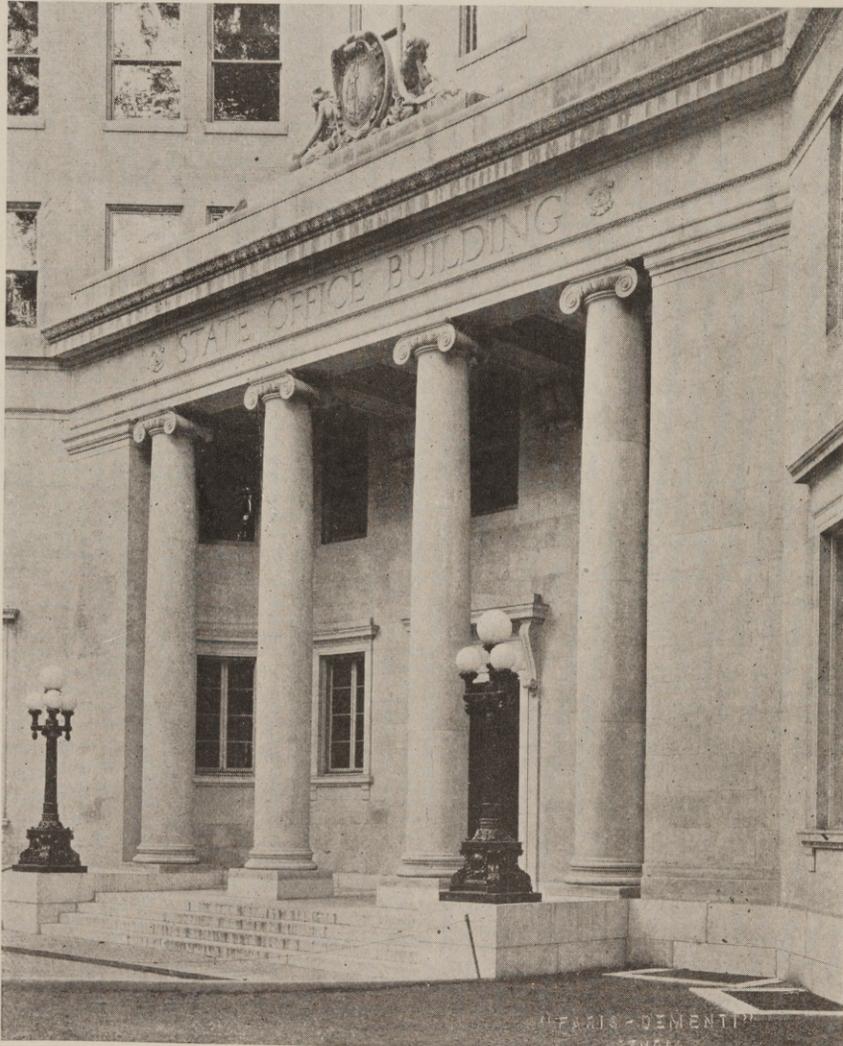
residences to one office building in the average city. It is much simpler to deal with a few owners of office buildings and a few hundred owners of central property than it is to answer the complaints of 50,000 owners of residences.

City tax assessors are generally coming to the plan of assessing ground and improvements separately.

An experienced appraiser can go to any city and estimate with approximate accuracy, the value of a building. To estimate the value of the lot, he must consult experienced realtors in that city. Of course, construction costs vary in different cities but an appraiser who knows his business, somehow senses that. Land values are liable to differ from city to city, much more than building costs.

City assessors are supposed to be familiar with lot values in their own cities.

They are coming more and more to the plan of uniformity in assessments. They assess all the inside lots of a block at practically the same figure, either per front foot or per square foot. The corner lots are given some arbitrary higher percentage. The farther out from the center of the city the assessor goes, the less is the value of the ground but a building which costs 50c per cubic foot in the heart of a city, would cost practically the same a mile away.



ENTRANCE DETAIL
STATE OFFICE BUILDING, RICHMOND, VA.

CARNEAL & JOHNSTON, ARCHITECTS.

*Business Manager
Taxpayers' League
of Atlanta.



WING ELEVATION
STATE OFFICE BUILDING, RICHMOND, VA.
CARNEAL & JOHNSTON, ARCHITECTS.

Experienced city assessors ignore the return on the investment as an element in fixing the value of a building. Income is to a large extent, a matter of bookkeeping. Checking the books to get at the true yield on the investment, is an auditor's job and tax assessors have not the time for that. Yields change from year to year. Again, values based on net return are often widely different from the market or speculative value. An appraiser for a loan company considers the income as an element of value. City tax appraisers do not. They appear to me to be working more and more toward uniformity. Every loan appraiser considers the probable selling price of a property. With city tax assessors, that is not so much a controlling element in arriving at the value for purposes of taxation. If they are sent out to get all the value they can, they may take a speculative sale as their basis for assessment but that may be very unfair to the next property owner.

It is human nature for tax assessors to lean to the property owner's side and to give him the bene-

fit of the doubt. A tenant who agrees to pay a fixed rental and to pay the taxes, often finds that the taxes are raised after he takes over the property. In these cases, it is generally true that the property had been getting by on a lower assessment than it should have had.

My observation has been that an assessment which is unreasonably high, can be reduced by showing the tax authorities that it is out of line.

The alarming phase of the tax question is the constantly increasing expenses of cities, counties and states all over the country. The Federal government is reducing expenses but local governments are spending more every year.

Uplifters and professional progressives are always urging that more money be spent on fads and whims and they are as insatiable as leeches. They are always on the job. Complacent councils and legislatures yield to their pleas. Hence, more money must be raised and property and business must pay more.

The only remedy in sight is for the taxpayers to organize and vote against officials who favor larger appropriations. Beat a few of them and the lesson will be long remembered. The spenders are organized to get more. The taxpayers must unite and resist.

Taxpayers outnumber the spenders and if the former will go to the polls and vote, they can halt the tidal wave of reckless extravagance which is engulfing cities and states. So long as they remain passive and inert, their taxes will continue to mount.

...Editorial Note—Mr. Frank Weldon, author of this article is perhaps one of the best posted men in the South on taxation, so far as it concerns the building industry. For years he has made a most careful study of the subject and what he has to say deserves serious consideration. No city wishes to have its building operations set back by unwise legislation and for this reason we present Mr. Weldon's article on the subject.

Old European SLATE ROOFS

Natural colors growing more
beautiful with age.

Greens, Greys, Purples, Reds, Blacks
in varying shades and mottled
effects.

Let us outline a roof suggestion
for you.

**KNICKERBOCKER SLATE
CORPORATION**

E. J. JOHNSON, President
153 East 38th Street, New York

STANDARD ROOFING SLATE—
STRUCTURAL SLATE—
BLACKBOARDS—
GARDEN WALKS



A \$100,000 Plastering Contract

For the Hurt Building, Atlanta, Ga., has just been completed by our organization. The faith which the builders of this, the finest office building south of New York City, showed in our company is evidence of the efficiency which our workmen invariably carry out in executing every contract intrusted to us

Our skilled workmen are capable and the officers of our company are prepared to carry to execution any contract let to us in exactly the required time for the finished work.

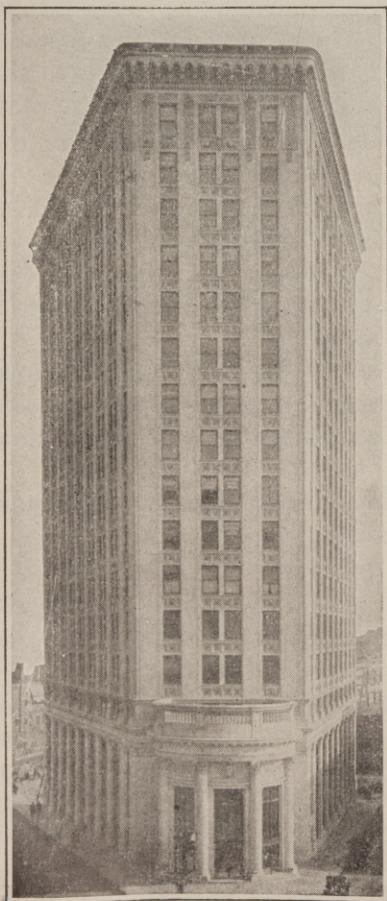
Let us figure with you on the plastering work for your next structure.

P. L. Gomez & Company
Plastering Contractors

509 and 510 Bona Allen Bldg.

ATLANTA, GA.

EFFICIENCY—SERVICE—QUALITY



Office Building Design from the Standpoint of the Operating Owner

By C. F. Palmer.

(Continued from page 64.)

The open work on cabs should not be low enough to allow Mr. Public to drop his cigar butt down the shaft nor to allow Mrs. Public to poke her umbrella through the side of the car to become entangled with the counter weights. Proper ventilation is necessary in the cab as well as in the shaft and this can be accomplished by vents around the top of the elevator and in the shaft door vents at the basement and at the top of the building under the pent house floor.

The pent house should be well lighted, roomy and, with a large set of motors, have as part of its equipment an over head crane. Many parts on which operating work is required are heavy and can be handled only with a crane. Good light and especially good air help the comfort of the shaft below and tend to keep motors from burning out.

An electric dispatching system such as has been recently invented allows satisfactory operation of schedules with a starter and cuts down current consumption, as well as providing prompter service at each office floor.

A shaft should be easily cleanable and its side wall construction such that dirt will not adhere. In front of the cars, that is where visible to passengers in the cars, it should be light color easily washable.

The ground floor lobby can impede elevator service if incoming and outgoing people have not ample room to pass and if the directory board is so located that person consulting it stands in the way of elevator traffic.

HEAT.

A large storage place should be available for fuel to take advantage of car loan and summer buying prices. Oil should not be specified unless the geographical location is such that the city enjoys a low transportation cost. A large office building had oil burners put in not long ago while being erected and when the purchase of fuel came up for consideration practically none was available.

Overhead, or "attic" distribution is harder to maintain than the basement and is hardly warranted unless the rentability of the basement space is so great that pipes should be eliminated from its ceiling. All risers should have separate cut-offs and frequently separate thermostatic control is a good investment on each riser as it allows less pressure on the easily heated sides of the building and throws more pressure on the northwest corner if that, as usual, is the hardest place to keep warm.

Such arrangements save materially in coal consumption.

Only a two-pipe system, of course, should be considered. This is especially true where heat is purchased from a central plant and is paid for by the thousand of pounds of condensation. Valves are more generally used by tenants if they are of the self-modulating type and not the round handle variety. The former are easily turned off and will be used instead of throwing open the window where it is necessary to turn down by many twists the round handle kind.

Radiator hoods help to keep walls from soiling and radiators hung on the side walls about six to eight inches from the floor allow more easy access for cleaning than the ones supported by legs.

PLUMBING.

Flush valves are more easily maintained than tanks. Many and easily reached cleanouts help. Drains in toilet floors help proper and speedy cleaning. Self-closing basin cocks prevent water waste but they should be so constructed that they cannot be wedged back or tied back.

A central stack for plumbing can be combined with the wire shaft at convenience to the operation of the building. These should be placed so that there is ample room for a man to work in the shaft.

All toilets should have locks so mastered that the tenant's office key will open them. The janitor's closet on each floor should have an entrance separate from the toilets to promote cleanliness and they should not be on a landing of the stair shaft but well placed in the center of the floor space to be cleaned by the night maid.

A central tank on the top floor for liquid soap, distributing its contents by half inch pipes to a location above each wash bowl helps to minimize labor.

Pedestal urinals are much more easily maintained than the wall variety.

PARTITIONS.

In the corridors no borrowed light from the offices through glass in the walls is practical from the standpoint of first cost and maintenance. Much labor is required to keep the glass clean and the result is poor appearance of cut up corridor walls and poor light as well does not justify such design. Modern structures for the most part are now being built with corridor walls of solid materials all the way from the floors to the ceilings.

The joining of subdividing partitions to the

RELIANCE FIREPROOF DOORS



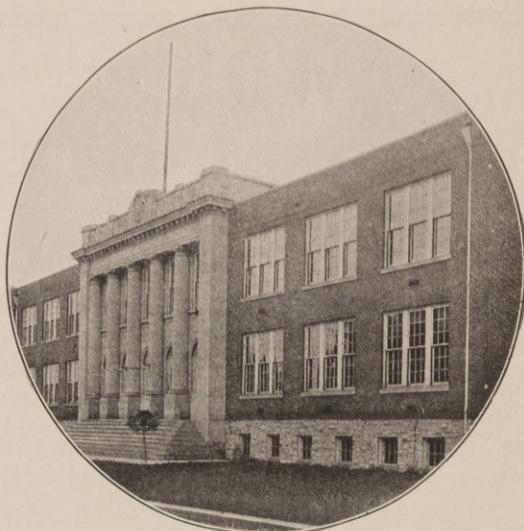
EMPIRE HOTEL, NEW YORK, N. Y.
Frederick I. Merrick, Architect
Empire Constructing Organization, Contractor

IN THE beautiful new Empire Hotel there are over 2150 Steel Door Frames, 110 Bronze Covered Doors and 575 SERVIDORS of RELIANCE manufacture.

Why not ask us to furnish estimates covering the work you now have in hand?

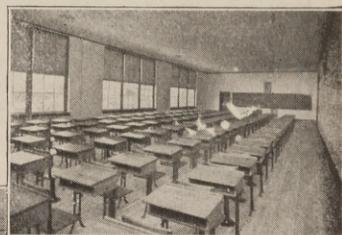
Reliance Fireproof Door Co.
Brooklyn, N. Y.

REPRESENTED IN ALL PRINCIPAL CITIES



“Every floor in the building is OAK, except the gymnasium, and I wish that were, too”

So writes the principal of the Central High School, Columbia, Tenn. Without question the four-fold test of permanence, cleanliness, economy, and beauty has been fully met in the opinion of one who has the well-being of school children at heart.



Initial cost is low; upkeep expense is low. Oak makes a secure floor, providing sound anchorage for desks.

Cleanliness and Beauty

The continuous beautiful surface is easily kept in perfect condition. No cracks collect dirt or germs. Sturdy American oak builds respect for soundness and good taste.

Valuable free literature

The advantages of oak floors are brought out in literature mailed on request to school board members, and all those interested in the equipment and maintenance of schools. Mail the coupon.

OAK FLOORS

Nature's Gift of Everlasting Beauty



THOUSANDS of restless tramping feet file daily in and out of school rooms. The wear on the floor is continuous and extreme. The strain on growing muscles is extreme, too, and must be minimized. No material meets the need as does oak flooring. It is Nature's own product, shock resisting, not "cold" or artificial; yet a permanent floor, enduring heaviest wear, and always beautiful.

Permanence and Economy

Floors are part of working equipment, and oak floors do not deteriorate. Only the finish wears, which may be quickly and cheaply renewed.

OAK FLOORING BUREAU, 1037 Ashland Block, Chicago

Send me "The Story of Oak Floors," a 24-page book with color plates of the new modern finishes; also other useful literature for reference files.

Name

Address

City..... State.....

"WRICO"

LETTERING GUIDES

You can now have
PERFECT LETTERING
on all your Maps and Drawings

THE "WRICO" LETTERING GUIDE is a simple and practical device by means of which anyone, without skill or practice, can do perfect lettering more easily and in less time than is required for ordinary freehand lettering.

Full particulars will be sent on request.

Send this Coupon

The Wood-Regan Instrument Co., Inc.

154 Nassau Street
New York City

The Wood-Regan Instrument Co., Inc. 154 Nassau St., New York City
Please send Circular giving full details of "Wrico"
Lettering Guides.
Name
Address

Dependable! Easy to Operate
Economical

M & E

ALMETL

TRADE MARK REG. U. S. PAT. OFF.

FIRE DOOR

Built to Resist Fire

Consist of two walls of galvanized corrugated steel, transversely laid, with an interlining of asbestos riveted to heavy steel frames. Meets the most exacting requirements of underwriting and fire prevention authorities and stops fires.

Send for Booklet or detailed specifications.

Merchant & Evans Company
PHILADELPHIA

Branch Warehouses:

New York Cleveland
Chicago Kansas City
Detroit Wheeling

For Detailed Specifications



The NEW **Pilot 57** FLUSH VALVE
A Diaphragm Self-Cleansing Valve with a Equalizing Port

Practically two valves in one. The diaphragm and the automatic self-cleansing equalizing port work harmoniously together as a "double feature" valve. The incoming and outgoing water pressure are perfectly balanced or equalized by the automatic self-cleansing equalizing port. A powerful stream of water in two directions automatically keeps the valve at peak of efficiency. Three other big "PLUS" FEATURES—adjustable water-saver, removable seat, and "easy to get at" compression shut-off.



Other Points of the NEW 5-7 PILOT Flush Valve

1. Everlasting leather diaphragm—no ordinary leather but leather specially prepared to keep up the PILOT record of "no maintenance."
2. Adjustable water saver—an easily accessible screw arrangement which governs the diaphragm controlling the amount of water used in flushing.
3. Removable Seat—any necessary repairs can be made without taking out the entire valve—a big labor and time saver.
4. Compression Shut Off—very accessible and quick opening.

Write for Commonsense Book on Valves Straight from the shoulder points about valves that are too often glossed over or neglected—points that will help you in your work. Write on your letterhead for a copy—write for it NOW.



HEDGES & BROTHER
107 SOUTH ST. NEWARK, N. J.

floors should be done in such a manner that when they are removed they will leave as little patching to be done as possible.

A two inch, steel channel, metal lath partition gives more rentable area than any other variety and at less cost, altho about the only salvage in moving them is in the wood trim.

Such plaster finish is cheaper but more difficult to keep clean and the maintenance or operating cost probably does not justify the slight or original saving. Offices should never be papered. Wall paper cannot be maintained with the ease of painted walls.

Chair rails are costly and of little use. They accumulate dust and the cleaning woman soils the walls in removing the dust. The isolated instance where a chair may be of the proper design and height to hit the chair rail when backed against the wall does not warrant their use as weighed against their many disadvantages.

Baseboards should be screwed into spot grounds if they are to be used for telephone or telegraph wire receptacles. However, a trough picture mold allows running concealed wiring without the necessity of removing any structural member for readjustment each time a change is made.

Conduits palced in the building frame as it is erected are the most satisfactory for the use of telephone and telegraph call box wires and are more easily maintained with the least wear and tear on a building of any other method of handling such services to the tenant, and with the least trouble with the partitioning.

For the resubdivision of offices a portable wood partition in each case where it is to be used in space entirely controlled by an individual organization is the most practical from the operating standpoint as it can be taken down and shifted from place to place with little loss of time or material.

FLOORS.

Floors of easily cleanable material such as concrete or terrazzo are the best from the operating standpoint. Wood floors require frequent oiling or refinishing. Other types while not quite so pleasant under foot are in the long run the most satisfactory to the tenant. The largest office building in the world has cement floors and but thirty per cent of them have been changed in any way with rugs, linoleum or otherwise by the tenants or the lessor.

ELECTRIC WIRING.

In the electric wiring all conduits should be large enough to allow for snaking of wires through them for new circuits as often as is necessary for changes in tenants' requirements for additional lights or electrical apparatus. All circuits should come completely back to the wire shaft so that each tenant can be placed on a separate meter. Meter panels should be equipped with bus bars so that all

offices on a floor can be placed on a single meter or every office on a floor can have its own individual meter. This should be possible of accomplishment with no change in wiring but merely by changing the bars on the meter panels. The result is that tenants enlarging or contracting their space can have the meter changes made without cost to the building in labor or material.

Pendant switches with pull chains on the fixtures are less costly than switches at the doors both in installation and in partition changes. No switch legs have to be removed from or relocated in the walls.

The fixtures themselves should be easily cleanable which means that they should not be so inverted that they catch dust.

Key switches in all public places help to keep the tenants and the management happy because news boys and telegraph messengers delight to turn off and on the lights and they usually leave them off. A switch controlling the corridor lights on each floor placed near the elevator helps the night man to turn off the lights with ease and the least loss of time.

A night bell with button at the entrance door so connected that it will ring a large gong in the elevator shaft is useful when the night superintendent has closed the building to make his inspection. Tenants catching late trains or needing to get access to their offices after midnight find such an arrangement a convenience. This bell also should be wired so that it is connected with the elevator annunciator system and can be thrown on or off at will. The night man can then make floor inspections even before time to lock the entrance door and yet he will be notified if a tenant in the building rings for the car because the gong will sound all over the building from the elevator shaft.

MISCELLANEOUS.

Shower baths and locker rooms for white and colored employees, male and female, are helpful in the operation of the building. Wash tubs for uniforms, aprons and dresses, also come in handy. These can be placed in the basement provided the basement is well ventilated as it should be because tenants use it for storage space and records should not be subjected to mold.

A separate service entrance for employees is good and a sidewalk elevator should be placed close enough to the freight car so that trucking will not have to interfere with other activities in the basement. This sidewalk elevator should also be placed close enough to the waste paper rooms so that bales coming out for sale can be moved with the minimum of labor.

An ample and easily accessible opening to the space between the roof slab and the suspended ceiling is advantageous because frequent use is made of



14 Reasons
Why you should Specify
The **BEST** Glass
REASON
No. 7

Our glass is washed and thoroughly cleaned in an acid bath, which prevents discoloration and permits ready detection of defects.

Thirteen Other Reasons

1. Our melting furnaces are the largest in the world and produce perfectly melted glass.
2. Our improved mechanical process of drawing and blowing gives our glass greater tensile strength and higher modulus of rupture than any other window glass, plate glass, or rolled glass.
3. Our latest improvements in our blowing machines enable us to produce absolutely perfect cylinders, which make it possible to secure the best flattening ever obtained.
4. Our new method of flattening gives our glass a perfectly smooth surface, and a brilliant polish, unequaled by any other window glass.
5. Our glass has far less wave than any other glass, and consequently shows less distortion.
6. Our glass is flat; it contains no reverse curves.
7. Our glass is uniform in thickness.
8. Our glass is perfectly annealed and therefore does not break as easily as poorly annealed glass.
10. Our glass cuts perfectly on both sides.
11. Our glass is graded to the highest standard of quality.
12. Our grading is the recognized standard for the United States, and is higher than foreign standards.
13. Our glass does not break in shipment, on account of the uniformity of flatness, well made boxes, great care in packing and skillful loading.
14. Our entire process is conducted on scientific principles.

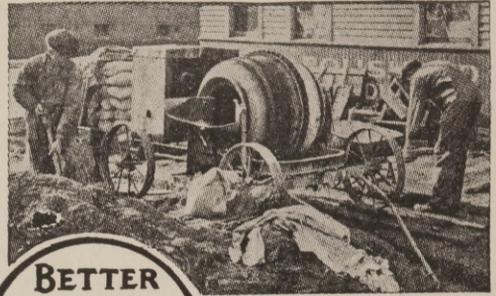
Sold by reliable jobbers and dealers in every community.

Send for Complete Window Glass Specifications—Now Ready.

AMERICAN WINDOW GLASS CO.

World's Largest Producer of Window Glass

GENERAL OFFICES: PITTSBURGH, PA. BRANCHES IN PRINCIPAL CITIES



**BETTER
AGGREGATE
means
BETTER
CONCRETE**

Profit Insurance without a Premium

The profits you make on that job depend on the progress you make. That means you must keep men and mixers busy—all the time. That means you must place your SAND and GRAVEL orders with a firm you can depend on—to keep them busy.

4000 tons a day

Our big modern plant, electrically operated, produces 4000 tons a day.

Arrowhead SAND and GRAVEL meet rigid requirements. Eight conical screens and two sand settling tanks assure exact cleanliness, sizing and quality.

We insure your profits without a premium. Our prices and service prove it! Get them now!

Montgomery Gravel Co.
Shepherd Bldg., Montgomery, Ala.

Branch Sales offices:

Age-Herald Bldg., Birmingham
Walton Bldg., Atlanta
E. A. Dawes, Thomasville, Ga.
H. L. Furlow, Orlando, Fla.

ARROWHEAD
Washed GRAVEL
and SAND



the space for electric changes for ceiling fans or some overhead fixtures some tenant suddenly decides he wants.

Central vacuum cleaning plants are less desirable than attachment for small machines on each floor and in fact some of the friction cleaners now on the market are useful enough to do away with any provision for the electric cleaner whatever.

All in all, from the standpoint of the operating

owner that office building for business which is designed for manufacturing dividends gives the greatest satisfaction to lessor and lessee alike because it treats everybody concerned on a parity of square dealing. Costly and inefficient equipment requiring great labor expenditure is replaced by its opposite. Tenants receive good service and at the same time the owner receives a fair and reasonable return on his investment.

"ASBESTOLITH" UTILIZED ON NEW HURT BUILDING FLOORS.

"Asbestolith" is the euphonious name given to a fireproof flooring that has been utilized with other modern material in the construction of the mammoth new addition to the Hurt office building in Atlanta.

This product, manufactured by the Asbestolith Mfg. Co., No. 1 Madison Ave., New York City, is rated among the highest types of present-day building materials, and its excellence is said to have been proven by its use in many of the largest and most modern buildings of the country.

Asbestolith is a light, warm and beautiful type of flooring, the material being of such diversified utility that it may be employed as wainscoting, stairway treads and in other places. Not only is asbestolith impervious to fire, but it is said also to be resistant to cold and dampness. It is also clean, noiseless and elastic. Its use in hallways, corridors and upon stairways, where much passing is necessitated, demonstrates its power to insulate surrounding rooms and apartments from noise rendering the product a most valuable one in this respect.

Another feature of the material is that it is guaranteed not to chip, or show wear from constant use. Its elastic quality renders it strongly resistant to footwear and its soft resiliency makes it a well-nigh perfect floor covering.

Asbestolith is made in various colors, such as red, buff, slate, black, blue, and may be laid in solid colors or in a paneling effect. Being less than half the weight of tiling, marble, etc., it may be utilized on floors that are not heavily supported and, therefore, not meant to carry great dead weight.

The use of asbestolith in the mammoth Hurt building is another evidence of the determination of the architects and contractors of this great building to use only the very best of every class of materials in order that the structure may be equal if not superior to any building ever constructed in the southern states.

Perlex Stucco and Wainscot manufactured only on special order. Superior to all others.

NEW JERSEY TERRA COTTA CHOSEN.

The part played by the New Jersey Terra Cotta company in the erection of the great Hurt office building in Atlanta was a most interesting feature of the big project.

So jealous was this famous concern of the reputation won by many years' efforts to supply the building world with materials of the highest quality and so careful were the heads of the company that only perfectly and accurately matched pieces be supplied for the addition to the original structure, that every possible resource was employed to render its ornamental parts exact reproductions of its original products.

In order to make these reproductions faithful facsimiles of the pieces furnished for the first big building, photographs were made of "close-ups" of its ornamental pieces, and furnished a guide for model makers, who later rendered the pieces in clay, reproducing the parts with faithful adherence to color scheme and other vital details.

As the models were completed they were carefully transported to the office of the New Jersey Terra Cotta Company, in New York City, where they were passed upon by experts on the company's staff who later sent them to Perth Amboy, where the mammoth manufacturing plant of the company is located. Other buildings in the south using New Jersey Terra Cotta include the following: Jackson Building, Asheville, N. C.; Sacred Heart Church, New Orleans, La.; Woolworth Building, Washington, D. C.; Parke-Davis Building, New Orleans, La.; Jerusalem Temple, New Orleans, La.

"DIXIKOTE" FOR ALL INSIDE WALLS OF THE HURT BUILDING.

When the first unit of the Hurt building was erected some years ago, the specifications called for "Dixikote" wall paint throughout, and it has been used continuously and exclusively ever since.

Also when the new section was added, the specifications again called for "Dixikote"—and so the inside walls of the entire building are now covered with this famous flat wall paint.

THE FRANKLIN

Gas-steam heat represents the latest, best and most advanced method of heat.

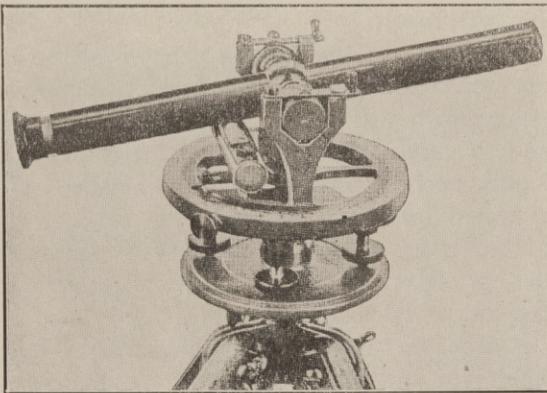
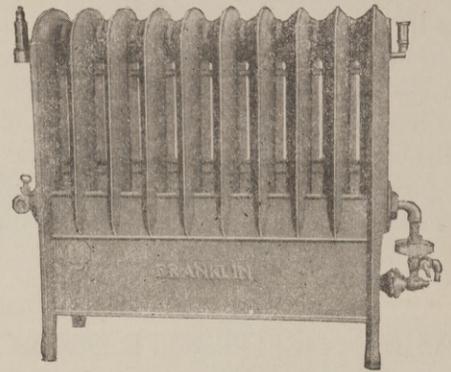
Heat when and where you want it, with absolute Cleanliness. Consider the results—Economy—Comfort—Convenience. With a FRANKLIN you safeguard comfort and health and heat the better way.

Built to last as long as the building in which it is installed. Furnished in low and high types.

Send for Catalog.

Manufactured by

Gas Appliance Division, the Trolley Supply Co.
MASSILLON, OHIO.



G & B Junior
The World's Greatest Low Priced
ACCURATE
CONVERTIBLE LEVEL

\$35.00. Easy Terms.

Wonderfully clear and powerful LENSES.
The only Low Priced Convertible Level and Transit combined.

10 Days' Free Trial. Deposit cheerfully returned if not satisfied.

Send Today for Circular E

Geier & Bluhm, Inc.

668 RIVER STREET

TROY, N. Y.

HOLLOW METAL

Doors, Frames and Trim

ELEVATOR

ENCLOSURES

CONDUO BASE

MANUFACTURED AND INSTALLED
BY

THE UNITED METAL PRODUCTS CO.
CANTON, OHIO

ATLANTA OFFICE
STRAFFORD R. HEWITT,
No. 608 WALTON BLDG.

WRITE FOR NEW PAMPHLET DESCRIBING THESE PRODUCTS.



IN THE FINEST BUILDINGS

LEADING architects specify Monarch Hydrated Lime for the most delicate plaster work in their finest buildings.

Its pure white finish and easy working qualities have been recognized by most of the well known plastering contractors the country over.

The buyer of Monarch Hydrated Lime as a finishing hydrate is assured of uniform quality in every bag.

We guarantee



every pound.

Trade Mark

Write today for prices

The National Lime & Stone Co.
Carey, Ohio

PLASTERING CONTRACTOR FOR HURT BUILDING.

The firm of P. L. Gomez and Company, Plastering Contractors, needs no introduction to the Architectural and General Contracting world inasmuch as they have plastered over a score of the biggest buildings in the south in the past two and one half years.

"Better Plastering for Better Buildings" is the slogan of the Gomez Company and the magnificent Hurt Building, the plastering on which is just being completed, bears them out in their testimony. The organization under the personal supervision of Mr. Gomez, has not only finished a good job of plastering but they have met with all the requests of the contractors on the job in a most congenial manner. Congeniality and service are the keynotes upon which they do business and this method not only has established their reputation but it has brought about a closer touch of business friendship among the contractors which otherwise perhaps would not have been manifested.

Mr. Gomez started in business a little over two years ago with only a small corps of men but by his skill and honesty, as well as careful management, has built an organization that is constantly in demand and capable of handling the largest contracts which might come up. Their's is an organization which is worthy of every good thing which might be said of them. When asked for a statement on the phenomenal growth his business has enjoyed, Mr. Gomez said: "We are very highly pleased when we think of the growth we have had. We are in business to give the best of service at all times, and upon this principle we are going forward to do "Better Plastering for Better Buildings."

MACARTHUR CONCRETE PILES USED.

The soil conditions under the Hurt building were somewhat variable and it was found that compressed concrete straight shaft piles would be costly if used entirely, as in some parts of the building they would have to be driven a very considerable length; whereas in other parts the straight shaft pile went into material stiff enough at a reasonable distance to be perfectly safe. The consequence was that two types of piles were used under this building, namely, the MacArthur Straight Shaft Compressed Concrete Pile and the MacArthur Compressed Concrete Pedestal Pile. In all there were 641 straight shaft piles driven and 858 pedestal piles. This represented a considerable saving, since no change of plant was necessary in driving the two types.

The MacArthur System, embracing the Compressed Concrete Straight Shaft Pile, the Compressed Concrete Pedestal Pile, and the Composite Pile covers all usual conditions in which piles are re-

quired. These three types of piles can all be driven, if necessary, on the same contract without loss of time as no change of rigging is necessary.

Where unusual conditions, such as lack of headroom inside an existing building, are encountered, the MacArthur Company has the cure with special piles.

THE STEWART IRON WORKS COMPANY, Cincinnati, Ohio.

The third edition of the Stewart Iron Works' "Book of Designs" contains many views of interest to architects and home-owners that were not embodied in either of the previous issues. In these photographs the camera has more thoroughly portrayed the artistic skill of their designers and more convincingly demonstrated the expert craftsmanship of their workers in ornamental iron than anything they might say in commendation of their product.

For every kind of property the Stewart Iron Works are prepared to design and construct iron fences and gates in harmony with the surroundings and architectural plan of the grounds or building. The position this company occupies in the manufacture of iron fence is recognized not merely on account of its creation of artistic effects, but for the more practical details of construction as well, the Stewart patent 3-rib channel rail and adjustable features being one of these.

On other pages in this "Book of Designs" a few interior and exterior iron work, such as balconies, solarium grilles, stair-railing, etc., are shown.

The Stewart organization is at the service of the architects and solicits an opportunity to cooperate with them to the full extent of its facilities.

THE KERNER INCINERATOR COMPANY, 1029 Chestnut St., Milwaukee, Wis.

The Kernerator. Booklet. 5 1/2 x 9 1/4 in. 40 pp. Illustrated. Describes principle and design of the Kernerator, guarantee and service, also gives illustrations of buildings where it has been installed, and testimonials.

Sanitary Elimination of Household Waste. Booklet. 4 x 9 in. 16 pp. Illustrated. Shows process, installations and advantages of the Kernerator.

Sanitary Disposal of Waste in Hospitals. Booklet. 4 x 9 in. 12 pp. Illustrated. Shows how this necessary part of hospital service can be taken care of by the Kernerator.

THE GEORGIA MARBLE COMPANY, Tate, Ga. New York Office, 1328 Broadway.

Why Georgia Marble is Better. Booklet. 3 3/8 x 6 in. Gives analysis, physical qualities, comparison of absorption with granite, opinions of authorities, etc.

ANCHOR WOOD FLOORS TO CONCRETE WITH

SAVES
TIME,
MATERIAL
AND
FLOOR
LOAD



SPEARPOINT FLOOR CLIP

BLASTEEL
MFG. CO.,
825 FINANCE
BLDG.,
KANSAS
CITY, MO.

ROANOKE IRON & BRIDGE WORKS, Inc.

Structural and Ornamental Iron
Wrought Steel Fences
Gray Iron Castings
Jail and Prison Cell Work
Write for Estimates

ROANOKE, VIRGINIA



ARCHITECTURAL CHARACTERS IN BRONZE

Special modeling such as portraits, reproductions of trade marks, emblems, rosettes, mouldings, letters, insignia, etc., is very capably handled by our modeling studio at a minimum cost. These can be made separately or incorporated as part of a bronze tablet or sign. Our large supply of stock mouldings, rosettes, letters, etc., can often be used to advantage, thereby effecting a great saving in cost to you.

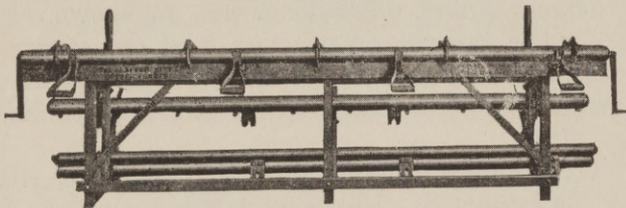
Write for Booklet.

ART IN BRONZE CO.

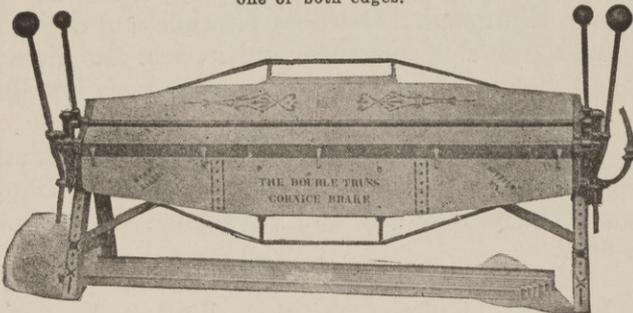
1501 COLUMBUS ST. CLEVELAND, OHIO

THESE TWO MACHINES

are serving
ROOFERS, SHEET METAL WORKERS AND CONTRACTORS
all over the world.



THE ELECTRIC CITY GUTTER FORMER
Makes complete Half Round Gutter 3" to 12" with bead on either one or both edges.



THE DOUBLE TRUSS CORNICE BRAKE
Has stood the test for over a quarter century.

—Thousands in use—

Write for catalog and other particulars.

Forming Machine Corporation

Successors to
DOUBLE TRUSS CORNICE BRAKE COMPANY
BUFFALO, N. Y.

W. B. Topp, Annandale, Sydney, Australia—Agent for
Australia and New Zealand.

SALES AGENTS: There is some splendid territory still available in the United States and Canada. Write for full particulars.

Sales Representatives

wanted in every city
to sell

Kilgour Lubricators

for

Elevator Guide Rails

they are

**EFFICIENT—ECONOMICAL
TROUBLE PROOF**

Over 5000 installations
in New York City

For particulars address

TENECO SALES CORPORATION

169 Massachusetts Ave., Boston, Mass.

Building Specialty Salesmen and Elevator Repairmen
Should Answer This Advertisement

AMERICAN ELEVATORS

Built by

AMERICAN ELEVATOR and MACHINE CO. INCORPORATED LOUISVILLE, KY.

Convincing Proof. Booklet. $3\frac{3}{8}$ x 6 in. 8 pp. Classified list of buildings and memorials in which Georgia Marble has been used, with names of Architects and Sculptors.

AN AUTOMATIC CELLAR DRAINER.

The Penberthy Automatic Cellar Drainer is a device for keeping the cellars, basements, scale pits and elevator pits dry and free from water, using city water pressure for power or it may be operated with steam. Contractors and builders use the Penberthy to drain excavations instead of depending on gasoline or electric pumps.

The manufacturers state that all parts except the strainer are brass, and except the float, are above water. The construction is simple, being an efficient ejector or siphon jet to which is attached a quick-opening float-controlled valve.

The drainer is placed in the sump or place where the water or seepage collects, a line from the city water supply attached at one side and a line leading to the discharge point from the other side. As the water rises in the pit, the float is raised and when the right height is reached, the valve is opened instantly allowing the city water to flow through the ejector, causing a suction, and carrying the sump water with it to the discharge. As the water goes down the float follows and when the low point is reached the valve closes to remain closed until enough water collects to again raise the float, when the whole operation is repeated.

This device is made by the Penberthy Injector Company, Detroit, Michigan.

BAD WEATHER NO EXCUSE FOR STOPPING BUILDING CON- STRUCTION.

Building construction can be carried on in inclement weather with much the same facility that good weather affords, according to the findings of

a survey conducted by the Department of Commerce under Secretary Hoover to determine why building could not be continued the year round.

The survey by the Committee on Seasonal Construction in the building industries was an outgrowth of the President's Conference on Unemployment, whose purpose is to stimulate employment, to eliminate waste, and to reduce costs.

This continuance of work in all seasons, the report says, is made possible to a great extent because of improved methods and materials in construction.

"Before steel was so generally used as a principal structural material," the report states, "high masonry walls, which the steel frame has in part replaced, or which as non-bearing walls may now be thinner, were not often attempted in cold weather, because of many uncertainties introduced; and much building therefore was crowded into a short period.

"Steel frames not only provide independent support for panel walls and floors, but also for suspended scaffolds and for canvas or other temporary shelters which make it possible to complete the structure without great regard to bad weather.

"An interesting development in this field came about through requirements that steel-framed floors be planked over for the greater safety of the workers below, and for pedestrians. Economy prompted installation of permanent floors instead; and protection from rain and snow is thus obtained early in the work. The enclosure walls, which formerly preceded the floors, are now built after them."

Individuals concerned with building are urged to do their share in contributing to all-year-round building operations by scheduling new work and repair work at a time when the pressure of general building is not at its height.

SAMSON SPOT SASH CORD



SAMSON CORDAGE WORKS, BOSTON, MASS.

GURNEY BOILERS & RADIATORS

FOR STEAM AND HOT WATER

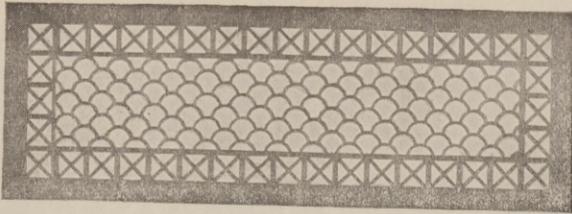
GURNEY

GIVE COMPLETE SATISFACTION

GURNEY HEATER MFG COMPANY

HOME OFFICE: 188-200 FRANKLIN ST. BOSTON

NEW YORK PHILADELPHIA WASHINGTON



Design No. 20

**Distinctive Grille Creations,
Carefully Designed, to Conform
With Architects' Specifications**

Made by

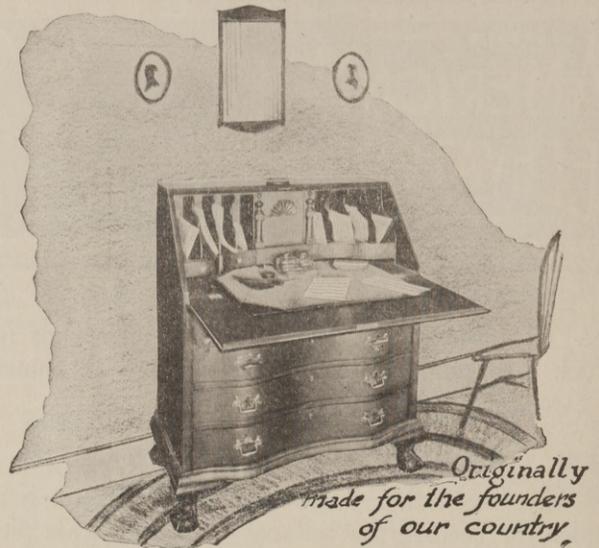
Wm. Highton & Sons Co.

Manufacturers of Registers
and Cast Bronze Tablets

Factory & Home Office Nashua, N. H.

Boston Branch Offices
New York Philadelphia
Baltimore Pittsburgh

See Our Catalogue in Sweets



*Originally
made for the founders
of our country,*

Governor Winthrop Desk

Who is there among those who really appreciate fine furniture, that does not admire the beauty and Colonial dignity of a Governor Winthrop desk? This correct copy of the old original piece is custom built of selected genuine mahogany by skilled cabinet makers. It has a hand rubbed finish, dust proof drawers, two secret drawers and solid brass fittings. There is nothing finer made. We guarantee it as represented or money will be refunded. Sent on receipt of price or C. O. D. with \$20 deposit. Plates of other antique reproductions on request. Ask for Booklet S-10.

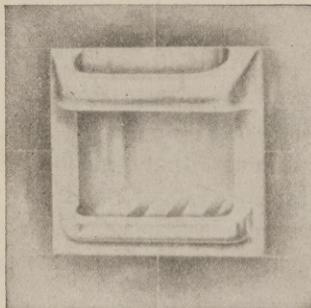
38 inches long, 20 inches deep, 42 inches high.

This is our
feature piece
especially priced.

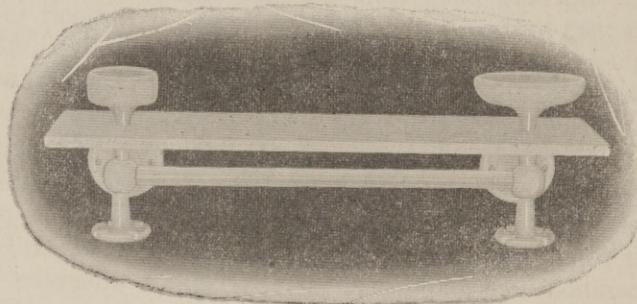
\$105

carefully boxed
for shipment,
safe delivery.

WINTHROP FURNITURE COMPANY
424 Park Square Bldg. Boston Massachusetts



**ALL WHITE
RIGHT
TRADE MARK**



2 PROJECTING LINES AND A RECESS LINE

Our Fixtures are the finished Products of 12 years experience, devoted exclusively to the manufacture of Bath Room accessories, and manufactured under our own roof.

A trained organization striving for perfection. Send for catalogue.
BAY RIDGE SPECIALTIES CO., INC., 682-92 Stokes Ave., TRENTON, N. J.

THE PHOENIX IRON CO.

MANUFACTURERS OF OPEN HEARTH

**Structural Steel Shapes, Beams
Channels, Angles and Ship Shapes**

Small orders given special attention.

Works: Phoenixville, Pa. Main Office: Philadelphia, Pa.

OFFICES:

22 S. 15th St., Philadelphia 132 Nassau Street, New York
Munsey Building, Washington 110 State St., Boston
C. of C. Bldg., Rochester 26 Victoria St., London

THE PHOENIX BRIDGE CO.

Engineers, Fabricators and Erectors
Bridges and Other Structures of Steel

CAPACITY 60,000 TONS

Small orders given special attention.

Works and Engineering Office: Phoenixville, Pa.



**LIGHTING
FIXTURES**

**Exclusive Designs
Bronzes and Wrought
Iron Work**

for architects who seek individuality in design and excellence in Craftsmanship.

WALTER G. WARREN & COMPANY

351-363 E. Ohio St., Chicago.



THE H. B. IVES CO.

New Haven, Conn., U. S. A.

ESTABLISHED 1876

INCORPORATED 1900

Manufacturers of

BUILDERS' HARDWARE

HIGH GRADE WINDOW AND DOOR SPECIALTIES

Write for Illustrated Folder.

W. H. S. LLOYD COMPANY, 105-7 West 40th St.,
New York City.

Architects Book. 301 pp. 8 x 5 $\frac{3}{4}$ in. Illustrated. Architects find this book of great service in selecting grades of wall paper. While it shows but a very limited selection of Lloyd Papers, it gives a fair idea of their quality, patterns and colors.

ADAPTABILITY OF TILE TO HOSPITAL REQUIREMENTS.

You, who are specialists in hospital design, will doubtless be interested to learn of the pertinent results obtained so far in an investigation of tile that is being carried on at Mellon Institute. This research, which is being conducted under the auspices of the Associated Tile Manufacturers, has for its purpose the determination of the suitability of tile for specific uses. The properties of tile are being studied broadly and its adaptability as a flooring material is being considered from chemical, physical and hygienic viewpoints. The object of this progress report is to summarize the experimental findings to date that are of special interest to hospital officials. Copy will be sent on request.

BRICK

ACME BRICK COMPANY, Ft. Worth, Tex.

Series No. 1.

Architectural designs rendered in Acme Brick. Booklet. 11 x 8 $\frac{1}{2}$ in. Illustrated. A series of 48 photogravures showing architectural designs rendered in Acme brick.

Illustrations show the various types of buildings erected in the Southwest in recent years. Sent free to architects applying on their office stationery.

JOHNSON SERVICE COMPANY, 149 Michigan St.,
Milwaukee, Wis.

Regulation of Temperature and Humidity. Booklet. 11 $\frac{1}{4}$ x 8 $\frac{1}{2}$ in. 64 pp. Illustrated. Describes Johnson system of pneumatic, automatic

regulation of temperature and humidity, and illustrates thermostats, valves, air compressors, dampers and other parts.

Johnson Electric Thermostats, Valves and Controllers. Booklet. 6 $\frac{1}{8}$ x 3 $\frac{1}{2}$ in. 24 pp. Illustrated. Excellent plates showing electric thermostats and controllers.

KEWANEE BOILER Co., Kewanee, Ill.

Kewanee on the Job. Catalog. 8 $\frac{1}{2}$ x 11 in. 80 pp. Illustrated. Showing installations of Kewanee boilers, water heaters, radiators, etc.

Catalogue No. 79. 6 x 9 in. Illustrated. Describes Kewanee Firebox Boilers with specifications and setting plans.

Catalogue No. 79. 6 x 9 in. Illustrated. Describes Kewanee power boilers and smokeless tubular boilers with specifications.

BURLINGTON VENETIAN BLIND Co., Burlington,
Vt.

Venetian Blinds. Booklet. 4 $\frac{1}{2}$ x 7 $\frac{1}{2}$ in. 32 pp. Illustrated. Describes the "Burlington" Venetian blinds, method of operation, advantages of installation to obtain perfect control of light in the room.

Wire Window Guards

Counter Railing
Skylight Guards
Fire Escapes

Crilles
Elevator Enclosures
Iron Stairways

Balcony
Brackets

Railings
Builders' Iron Work

STANDARD IRON & WIRE WORKS

Chattanooga, Tenn.

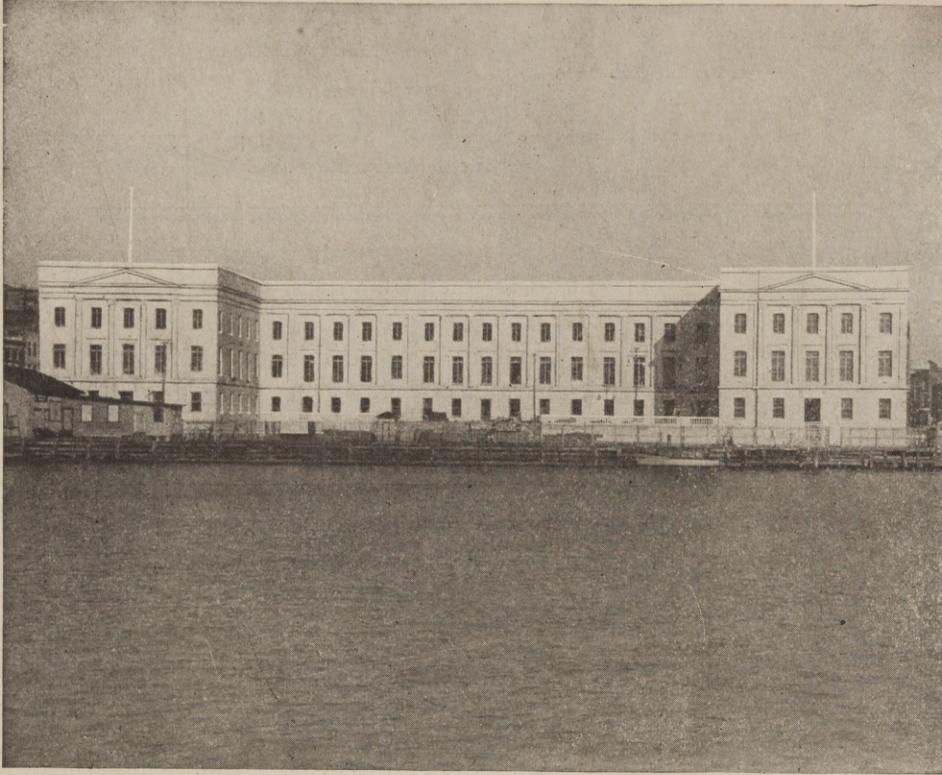
PENNSYLVANIA STRUCTURAL SLATE CO., Inc.

BLACKBOARDS—URINALS—CLOSET—SHOWER—STRUCTURAL SLATE FOR ALL PURPOSES
STALLS STALLS STALLS

"Yours for Prompt Service,"

DOME BLDG.—Main Office

EASTON, PA.



United States Custom House

Wilmington, N. C.

John W. Kissel &
Co.,
Plaster Contractors.

Southern Gypsum
Company's hard
wall plasters used
throughout this
building.

Sold by Agents
everywhere.

SOUTHERN GYPSUM COMPANY, INC.

North Holston, Va.

Wall Plasters, Plaster Paris, Plaster Finishes, Plaster Board and Gypsum Block. Printed matter on application.

Founded
1878



Incorporated
1884

The Standard for Rubber Insulation

FOR 45 years the name "Okonite" has stood for the highest quality of Electrical Insulation for Wires and Cables.

"Okonite" itself is a rubber compound never containing less than 30% by weight [over 60% by volume] of high grade Para Rubber with absolutely no admixtures or substitutes.

All products bearing the Okonite trademark carry with them our unconditional guarantee of excellence and unvarying reliability.

Okonite is made in but one grade.

THE OKONITE CO., Passaic, N. J.

Sales Offices:

NEW YORK ATLANTA PITTSBURGH SAN FRANCISCO

Agents: Central Electric Co., Chicago, Ill. The F. D. Lawrence Electric Co., Cincinnati, Ohio. Pettingell-Andrews Co., Boston, Mass. Novelty Electric Co., Philadelphia, Pa.

Canadian Representatives: Engineering Materials, Ltd., Montreal.

Anchor Brand Colors

Are the Best Made

For Mortar and Cement Coloring. They are Permanent, Brilliant and Strong.

A Building Material Dealer's stock is incomplete without a line of Colors for this purpose.

We solicit your inquiries and requirements.

C. K. Williams & Co.
Easton, Penna., U. S. A.



We Can Ship Tile Promptly

Are you delayed on account of the shortage of TILE?

We are prepared to ship within 10 days after receipt of order in Car Lots or less.
1" White Hexagon, 6x6 Red Quarry, 4x4, 6x6 Black, White, Red and Porphyry Gray Floor Tile.
6x6, 6x3 Glazed Wall Tile, 6" Sanitary Base, 6x2 Bull Nose Cap for Wainscot.

Write for prices. State Quantities and Kinds of Tile wanted and when shipments are desired.

We are shipping into 19 States. We please others, we will please you.

Southern Mosaic Tile Co.

CANDLER BLDG.

ATLANTA, GA.