THE AMERICAN ARCHITECT

VOL. CII. WEDNESDAY, JULY 10, 1912 No. 1907

GLAZING METHODS

PART IV

THE architect, having selected his glass for the proper and appropriate glazing of a building, will then endeavor to specify a method of glazing same to secure the proper results, and many and varied are the means he may use to obtain his ends.

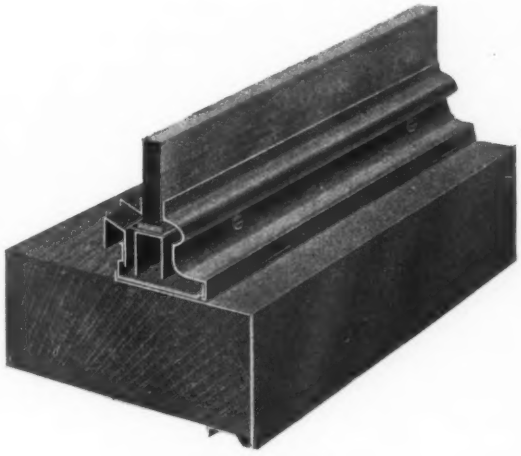
He will, of course, for ordinary work call for putty glazing, every light to be fastened first with zinc glazier's points and stopped in with commercial putty in a workmanlike manner. The greater part of the ordinary glazing of the country receives no more attention than this, except that sometimes the architect may state that the whiting be the best procurable and a certain brand of oil be used.

Experience has proven that the ordinary commercial putty is usually of a satisfactory quality, as it is not advisable to cause it to set too hard, for the breaking of glass or warping of sash may cause the replacement of glass and the necessity of cutting away the old putty.

When the condition arises in which the glass is subject to much shock or vibration it might be well to ask for the addition of a little lead to the putty, this causing it to set very firm and hard and being particularly effective for fireproofing work in metal-covered or steel sash.

A way more harmonious with the average building of any pretensions is to "stop in" with a moulding of size and type to approximate the room finish; the wooden molding seeming to be more cleanly and is easily moved and replaced if necessary without scarring the frame. There is nothing to be said about this method of setting except that the molding match the room and be securely nailed in place to retain the glass.

For full fireproof work in sash it is advisable to use metal all over, and in mill, warehouse and similar construction possibly this is best done by using all-steel frames into which taps have been made to receive screws with which a metal molding is used to "stop in" glass.



METAL SASH

For buildings where the making of the sash of solid metal to match the general conditions would cause it to be too heavy for use there can be used a metal-covered wooden sash of which several good makes are on the market.

Sometimes, where the type of building seemed to warrant it, false glazing in wooden fret has been resorted to, the design being worked out and inserted in sash so that the glass may set flush against it from the inside. It is hard to see just what end is served by this construction, except possibly the first sight; its deceptions are evident and it does not take long for the fretwork to warp so that it is entirely out of place.

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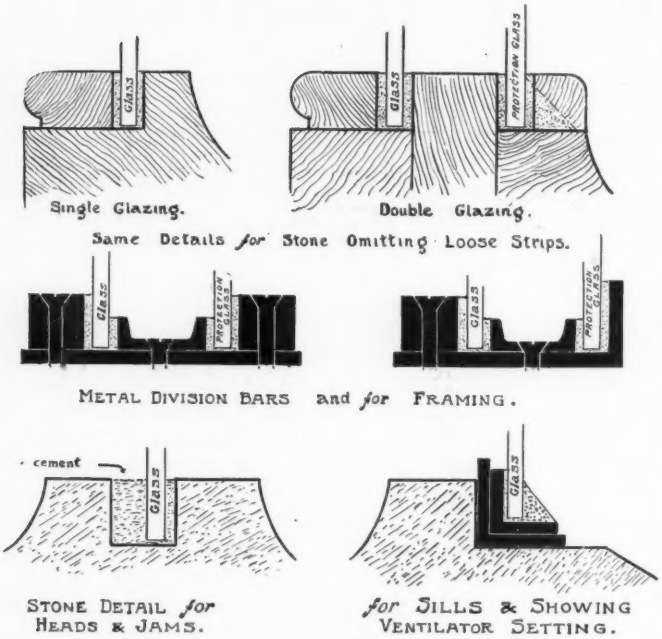


GLAZING DETAILS

The question of the best store front construction is one that has been hard to solve, the questions involved being the least obstruction to vision by division bars, the neatest construction, its durability, its insurance features, the frost problem; these all seem best solved by the metallic bar systems; there are several of these to be procured.

In the effort to make sightly the angles of large fronts a few years ago, there was developed the all-glass system, of the general type as here illustrated.

LEAD AND METAL GLAZING

The joining together of small pieces of glass by bands of lead to form lead glazed work began in the Middle Ages, in all probability about the 9th century, for no previous mention of it is found.

At once it began to be associated primarily with ecclesiastical work, and stained glass, but its use with clear and light tinted glasses for other than ecclesiastical work survived and many patterns in pure linework of extreme and beautiful simplicity were originated from time to time.

For a while, during the period of the Renaissance, lead glazing fell into disuse, but since its revival its use has increased until today it enters into all buildings of any pretensions whatsoever.

It is not the intention of the writer, as previously mentioned, to enter any more than can be avoided into any discussion as to design and color, however much it may seem to be interwoven with the subject. All desirable glasses have been written of and illustrated so that the architect may procure actual samples from which to select.

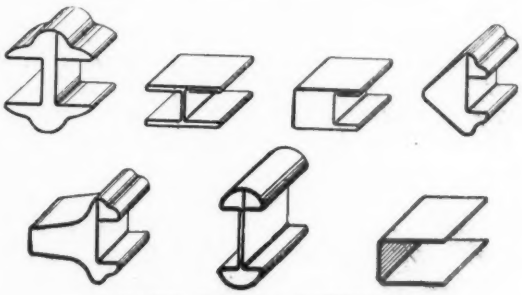
The point the beauty of which has been to a large extent lost by the moderns, is the beauty of line in the lead work.

Because the lead Came was susceptible of use in curved work it has been used in the drift toward natural models and distorted into shapes from which all purity of line has been taken; this being helped along by the profuse use of color that has been introduced in recent years.

It would seem, however, that we have been surfeited with high colored and bad line work and must soon again begin to see the true beauty of leaded work in pure line and clear or light tinted glass.

In actual practice the architect has usually a certain amount appropriated for the purpose of providing leaded glass and must call for glass to cost not over a certain sum per square foot; if he has studied the situation and has a definite idea of the glass and school of design he wishes, he may then ask for sketches from the makers of leaded glass from which to select those that most nearly meet his views.

The more intricate the pattern to be

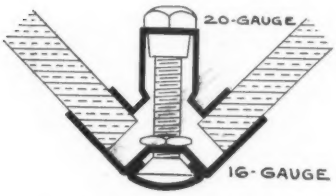


HARD METAL SETTINGS

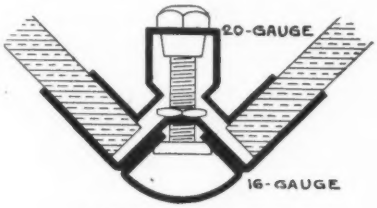
worked out, making more cutting and selecting of glass, the greater the price, this also being somewhat governed by the price of glass selected and lead to be used, as well as the finish and workmanship.

The face of the lead used should be an integral part of the design, its width having reference to the size of the pieces of glass in work and the pattern to the type of design; it may be that sometimes very good effects may be gotten by the use of leads of varying width of face.

The face of the lead may be made to be in conformance with the design, for which many patterns are made, as shown by the accompanying illustration. As the architect has selected the glass for his work so he must select the lead, having in mind principally the width of face to show and the design If it should be that among the stock leads he does not see just what he needs, the makers are always very willing to make anything special needed upon receipt of a sufficiently large order.



CORNER BAR NO. 5
FULL SIZE



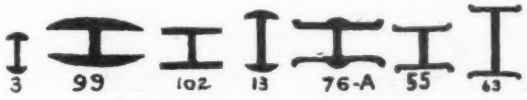
CORNER BAR NO. 10
FULL SIZE

It will, of course, be well to mention that the joints must be soldered in a neat and workmanlike manner.

Each leaded light must, of course, be cemented all over and the cement well rubbed through the joints, as upon it depends not only the strength of the light, but also its ability to resist the effects of the weather by reason of its adhesion to both glass and lead.

White lead if it were not so expensive would be an ideal material, various cements are used by the different makers, most of which if well rubbed in are suitable for the purpose.

Leaded glass needs to be barred up or strengthened to enable it to stand wind pressures and mechanical strains; this is done usually by the insertion of strengthening bars of steel; in the case of the usual household work flat steel bars about $\frac{1}{8}''$ x $\frac{3}{4}''$ are used, these are tied to the light by ties of copper wire, these being first soldered to the joints of the leaded work at the proper interval; these may of course be placed vertically or horizontally as best may go with the design and their size increased according to the strain to be put upon them.

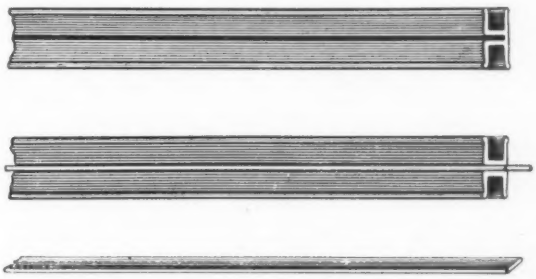


LEAD CAMES

As a matter of practice it is very unusual to make a leaded light more than about 5 feet in its larger dimension for convenience in shipping and handling; at the simplest place to do so it is usual to insert a "break-lead."

When a large light is so broken after putting same in place the flanges of the upper lead are smoothed down over the closed flanges of the lower, making a waterproof joint, and a heavy saddle or T-bar placed across window to strengthen it at this point.

In large windows it is evident that sometimes the size is such that very large and unsightly bars may have to be employed,



STEEL REINFORCED LEAD CAMES

in which case a great deal of thought must be devoted in trying to place them so that they may not interfere with the design, bending or deflecting the strengthening bar is sometimes necessary.

Even the smallest bars should be carried into the frame a full half inch beyond the rebate or groove, this of course, is an easy matter in wooden sash, but a little more difficult with metal or stone.

In the setting of lights in stone it is usual to bed them in a mastic cement instead of

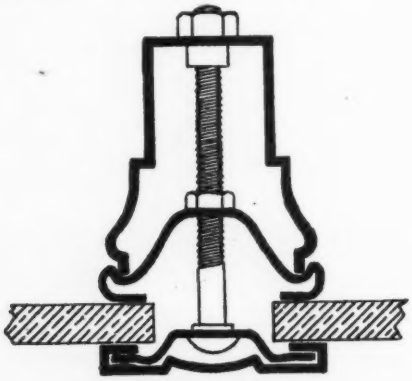
A CORNER BAR

putty, the cement commonly used being about as follows:

Sand	60	parts
Limestone	20	"
Litharge	10	"
Linseed Oil	7	"

Reduced to powder and mixed.

In the use of leaded lights where they were subjected to great strains, as in small unsupported domes, awnings and door



A DIVISION BAR

lights, the necessary "barring" became a great objection and resort was had to the use of hard metal settings instead of lead, and for this purpose zinc bar has been in use for years with more or less success. It can be drawn into a great number of shapes as evidenced by those shown in the illustration.

Zinc bar makes a very strong and rigid framework and can be plated to take any desired finish, but when the lacquer and plating are worn away it is more susceptible than lead to the action of the weather and will probably never replace lead for this reason, except in the particular instances mentioned.

One other objection to the use of hard metals is difficulty of replacing any pieces of glass that may be broken, as it is necessary to take the light apart to do this.

Brass has also been drawn and used in the making of hard metal work, but is open to all the objections urged against zinc. German silver has also been used to some extent.

On all hard metal work, even zinc, the first cost in any event will be high on account of the difficulty of working it even in simple straight lines, as every joint must be sawn true and mitred to fit and with curved work the cost will increase greatly, the metal being so hard to fit.

In the effort to get away from using the bars to strengthen the lights, resource has been taken of recent years to a steel cored lead which shall conceal the bar and yet give the necessary strength. These have been in use for some years in Europe.

The insert being a plain wrought iron bar, it is obvious that such a bar can only be used on the straight lines and to be of much use must be continued beyond the rebate and after stripping the lead cover be inserted into the necessary holes in frame.

Quite an improvement has been made of recent years by the use of a lead Came into which a tin covered steel bar is inserted after the making of the light. In this process the light is built up in the usual way, and the steel core in the shape of a thin bar of tin covered steel inserted afterwards, making a very strong construction as the steel can be bent in any curve so as to make a continuous line, and afterwards may easily be floated with solder to form a solid light.

In the making of designs requiring very fine work, as a small scale floral design, the use of even the narrowest faced lead Came has seemed out of proportion and in this case resort is had to the binding of the edge of each piece of glass with a very fine copper ribbon, .001 gauge, the pieces being afterwards laid in place with contiguous edges and enough solder to fasten them floated upon them; if well and carefully done this work is fully as strong as lead and permissible in fine work.

AUDITORIUM FOR THE CITY OF OAKLAND, CAL.

The following letter addressed to the Hon. Harry S. Anderson, Commissioner of Public Works, Oakland, Cal., by John J. Donovan, Supervising Architect of the City of Oakland, will explain the illustrations to be found elsewhere in this issue.

May 24, 1912.

Dear Sir:—

I beg to submit to the Council, through you, the preliminary sketches for the new Auditorium to be built on the Peralta Park Play Grounds, fronting on Twelfth Street.

In submitting these sketches an effort has been made to develop a civic center, showing the Auditorium with a prospective future Public Library and a future Art Museum, forming a square, with a large plaza leading up to the Auditorium which fronts on the lake. Also a treatment of the south side of Twelfth Street and the shores of the lake by means of an esplanade and steps leading to the water, with small pavilions at the ends of the steps which may be used for Casino and Boat House purposes.

The play ground space back of the Auditorium covers an area of 500 feet by 1,200 feet, which gives ample room for a half-mile track which in turn encloses a quarter-mile track and which provides sufficient space for a large Stadium. On the southeast corner of the playground space is shown in outline a possible natatorium.

The Auditorium itself is 450 feet in length by 200 feet in width. The height at the center portion is 75 feet. The scheme is that of one large building which contains an arena over all dimensions of 180 feet in width by 265 feet in length. The Arena floor is 100 feet by 225 feet. This room will have a seating capacity of approximately 10,000 people and to the west of the room is the stage which connects with another large room which we have styled the Lecture Hall or smaller Auditorium, which is 100 feet by 100 feet and which will have a seating capacity of 3,000 people, which when connected with the Arena will give a total seating capacity of approximately 13,000 people exclusive of standing room.

Separating the Arena and Auditorium is the stage, which as stated before connects both and which may be lowered to the level of the floors. The two asbestos curtains divide the arena from the Auditorium, which permits the two rooms to be used separately or jointly.

Surrounding these rooms is an ample corridor, with large lobbies for both. The portion of the corridor toward the north has been developed as a hall for exhibits, well lighted and containing booths or stalls for individual displays.

On the second floor, flanking the Auditorium, are two large rooms with their staircases and lobbies, with their services, and these rooms may be used as lecture rooms, art galleries, dance halls, banquet rooms, etc.

The building has been well provided with inclined plane for the Arena, thereby doing away with awkward staircases. Executive offices, toilet and cloak room have been provided in view of the many uses of the building and a service entrance is shown at the rear of the building, leading to a large preparing room for scenery, dressing rooms, etc.

Likewise a loft has been provided for so that the Auditorium will be available for constant use.

The skylight roof over the Arena can be rolled back on the cantilever trusses so as to give a ventilated and open air room for the Arena.

As to the architecture of the building, the facade fronting the Lake is the most important, and this elevation has been developed so as to be most interesting and forming a dignified scheme for the rectangular structure on the back. This facade is constructed of a granite wall 420 feet in length by 55 feet in height, pierced with seven arches, 30 feet in diameter, and these arches form the frame for niches; each of these niches have three windows which provide an abundance of light to the corridor and will be constructed of artificial stone. The niches will contain monuments and fountains, emblematic of the industries of the State of California, such as forestry, horticulture, agriculture, fisheries, mining and transportation.

The illumination of these niches with concealed lights in the ring of the arch and lights behind the fountains will produce a festive appearance and furthermore the entire structure is crowned by an illuminating cresting, which will silhouette itself like a piece of luminous lace against the dark sky at night.

The interior of the building will be treated according to the character of the room. The Arena will have concrete slopes, wooden floor, exposed ornamental roof trusses, panel walls. The Auditorium, the two small rooms and corridor on the second floor will be treated in plaster ornamented and decorated.

The conception has been to make the Auditorium a most interesting building, unique in its plan, as well as in its elevation, so that it will prove an attractive monument for visitors coming to California, as well as for the residents of Oakland.

On account of the simple, straightforwardness of the design, both of the exterior and interior, the estimated cost of the building is within the appropriation, namely $500,000.00.

The present project is to begin work on the final drawings immediately upon approval by the Council of these preliminary sketches and to carry this work on with progress and speed as good planning will permit. It is earnestly hoped that the city can let a contract for the piling and foundations by the latter part of August, and a contract for the steel work almost the same time, and then a general contract not later than the middle of September. The whole building to be completed in September, 1913.

Respectfully yours,

J. J. DONOVAN.

BUILDING OF THE UNITED STATES RUBBER COMPANY

MESSRS. CARRERE & HASTINGS, ARCHITECTS

THE building is located at the southeast corner of 58th Street and Broadway, New York City. It was built for the United States Rubber Company from plans and specifications prepared by Carrere & Hastings. The building covers a lot about 100 feet square and is twenty stories high above the sidewalk. Below the sidewalk is a basement and sub-basement. The first floor, the first mezzanine, basement and sub-basement, will be occupied by the United States Tire Company, while the floors from the fourteenth to the twentieth will be used by the owners for executive and clerical offices.

The floors from the second to the thirteenth, inclusive, have been laid out as offices for rental purposes. Each floor contains 6,600 square feet rentable area, lighted on all sides and capable of subdivision into individual offices of from 280 to 630 square feet—thus accommodating tenants whose requirements range from the minimum area up to an entire floor.

The toilet room accommodations for the use of tenants consist of a men's toilet on each floor and a women's toilet on each alternate floor.

The cost of the building complete is about $1,600,000.

The excavation was entirely in rock. Possession of the site was obtained the first of May, 1911; the buildings on the site were immediately demolished and excavation commenced.

The finished sub-basement floor of the boiler room is 29 feet 4 inches below the curb.

The foundations were started in August, 1911, and notwithstanding the severe winter, the work was carried on uninterruptedly, and the first tenants were moved into the building, elevators running, the first of May, 1912.

The street façades are executed in Vermont marble. The courts and the party line façades are faced with a light brick On these exposures window frames and sash are Underwriters' Standard Hollow Metal, glazed with wire glass. On the street façades window frames and sash are kalamein.

The building is surmounted with an overhanging bracketed copper cornice, which, at the time this is being written, is being decorated in color, to harmonize in character with the façades.

Pent houses are of brick; roofs and decks are of 6 by 9 inch roofing tile laid over waterproofing, and all flashings are of copper.

All foundations and footings are on rock, and the portion of the building below the sidewalk, including the sidewalk vaults, is waterproofed in the manner usual with high class buildings of this type.

The frame of the building is of the usual steel skeleton type and its design entailed nothing that is unusual in this form of construction.

The floor construction is of terra cotta, which material is also used for partitions Terra cotta was chosen for the floor arches because of the fact that this portion of the work was put in place during the winter months.

The stairs are of iron and steel, with marble, slate, and, in places, rubber tile treads.

The interior finish throughout the entire building, including the portions occupied by the owners, is very simple in character and consists, essentially, in cement floors, slate base, hollow metal doors and frames, plastered walls and ceilings.

The floors occupied by the owners are subdivided by fireproof wood partitions. All fireproof wood partitions and incidental trim are of African mahogany. On all floors where any fireproof wood is used the hollow metal doors and trim are finished to match the African mahogany.

(Continued on page 16)

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ADVERTISING SIGNS

IT is stated that the Local Government Committee of the London County Council has recommended that the Council frame a by-law "prohibiting the exhibition of any advertisement within forty yards of 108 scheduled open spaces, in such a way as to be visible from such open space. In a second schedule, thirty open spaces are specified, from which it is proposed to protect the view from disfigurement by advertisements."

This wise and appropriate action is, however, annulled as to present effect, since it exempts for a period of five years all existing advertisements. The exemption appears to be unreasonable and much in favor of the advertiser. A period of twelve months would be fairer to the public and entirely fair to advertisers who may have invested certain sums of money in advertising signs.

The subject of advertising billboards and general out-of-doors display of advertisements has become one that requires determined action in order to keep it within proper limits. Our trips abroad, taken not infrequently for the sole purpose of recreation, are marred through advertising signs that everywhere abound, and act as a constant reminder of things we most desire, for a time at least, to forget. The advertising sign board can, and not infrequently is, made a positive nuisance. The city of New York, for example, has spent time and money in an effort to secure artistic subway stations, but either through oversight or indifference has allowed them to become disfigured with advertising signs and all manner of vending devices. In fact, the station names, artistically placed and made a part of the decorative treatment, can now scarcely be distinguished in some instances by reason of a hundred and one placards and announcements that have been displayed in most conspicuous positions.

If the Scenic Preservation Society is still an active organization, it might with profit direct a campaign against the disfiguring sign. That all intelligent citizens would uphold its efforts and rally to its support there can be no doubt. A first step toward tangible results might be taken by securing the passage of ordinances in our larger cities somewhat along the lines of the by-law of the London County Council. Such enactment is undoubtedly calculated to protect the rights of the people, without causing loss to the property of the advertiser, and appears to be in line with popular sentiment, that will beyond question prevent in the near future any disfigurement to public places or scenery, either urban or suburban.

BUILDING ALTERATIONS MADE SAFER AND BETTER BY USING FIRE-RESISTING MATERIALS

THE desirability of building new structures of fireproof and enduring materials is generally recognized by architects. No one questions the superiority of or the numerous advantages accruing from constructing buildings of brick, terra cotta, steel and concrete, and adopting some form of non-inflammable trim. Even the smaller building erected in any city or town of considerable size is now generally built of materials that are practically if not entirely fireproof. Apparently, however, it is not deemed essential by many to use any degree of caution in building or even to employ fireproof materials in making alterations to existing structures, in themselves not classed as fireproof. That such view is not justified will be evident upon very little reflection. Fireproof

partitions can be erected at little, if any, advance in cost over those that are non-fireproof. The weight also is not greatly in excess of that of the old type inflammable partition. Even floors can be made fireproof, or practically so, without an expense unjustified by the additional safety and permanence secured. There are many methods of construction now available, which make it not only feasible, but comparatively economical to remodel buildings and at the same time add an element of protection both to the tenants and to the property, not possessed by the structure before the changes are made. A building thus remodeled will command a better class of tenants and higher rentals, while the saving in insurance cost will many times afford adequate return on the investment. In addition to these features, the building will require fewer repairs and the owner will be afforded the satisfaction of knowing that he has done whatever lay within his power to protect the lives and property of his tenants, and at the same time contributed something toward the movement to reduce fire waste, which in this country exceeds by appalling figures that of Europe.

BUILDING OF THE UNITED STATES RUBBER COMPANY

(Continued from page 14)

Elsewhere, hollow metal is finished in a mouse gray color.

Fireproof wood has been used only for low partitions, railings, counters, etc.

All trim in terra cotta partitions and at stairs, exits, etc., is of hollow metal.

In the portion of the building to be occupied by the owners there has been used a considerable amount of rubber tile for the floors of corridors, waiting rooms, etc., and this material has been used for floors of elevator halls above the first floor.

In the portions of the building occupied by the owners, the offices of the presidents of the United States Rubber Company and its subsidiaries, adjoining board rooms, etc., are finished simply in fireproof wood, with marble mantels, marble wall bases, simple plastered ceilings and fireproof wood floors.

The store in the first floor, which will be used as a show room for the United States Tire Company, will be finished with rubber tile floor, Botticino marble borders and wall base, artificial Caen stone walls, and plastered ceiling.

The finish of the walls and ceilings in the elevator halls above the first floor and in the corridors is of the simplest possible type.

The main entrance vestibule and elevator hall have Botticino marble floors, and the same material is used for the finish of the walls from the floor to ceiling, while the latter is of ornamental plaster.

Toilet rooms throughout the building are finished with plaster walls, tile wainscotings, marble partitions and terazzo floors, in the usual manner.

The plumbing system includes hot and cold water supply piping throughout; fire standpipe and hose equipment. A portion of the building is equipped with automatic sprinkler system with the necessary pressure tanks.

The heating system is low pressure steam with vacuum circulation. Steam is supplied from boilers in the sub-basement.

The lighting installation is connected with the Edison system, and all fixtures are fitted with tungsten lamps.

The cleaning of the offices is to be managed by means of portable vacuum cleaners.

All of the floors in the upper portion of the building are connected by pneumatic tubes for convenience in the interchange of written matter between various departments, and there is also a complete intercommunicating telephone system.

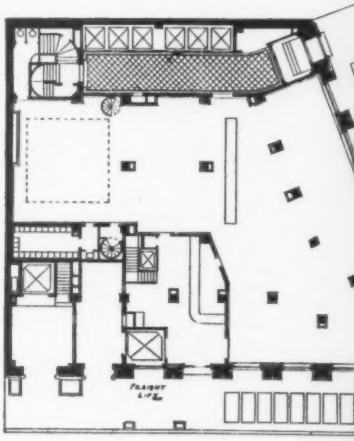
All passenger elevators are traction type, with overhead machines. The installation consists of six passenger elevators (three local and three express), one private elevator, one freight elevator for the use of tenants, and one freight elevator and one large dumbwaiter for the use of the United States Tire Company.

UNITED STATES RUBBER BUILDING, NEW YORK CITY
MESSRS. CARRERE & HASTINGS ARCHITECTS

DETAIL OF AN ENTRANCE ON BROADWAY

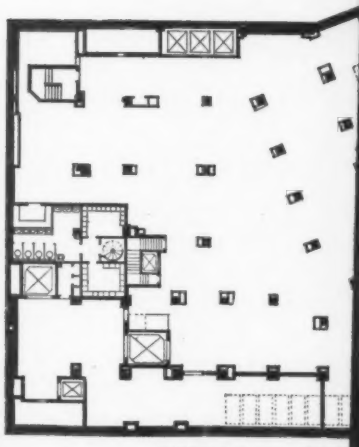
UNITED STATES RUBBER BUILDING, NEW YORK CITY
MESSRS. CARRERE & HASTINGS, ARCHITECTS

PLAN OF FIRST FL



FIFTY-EIGHTH STRE

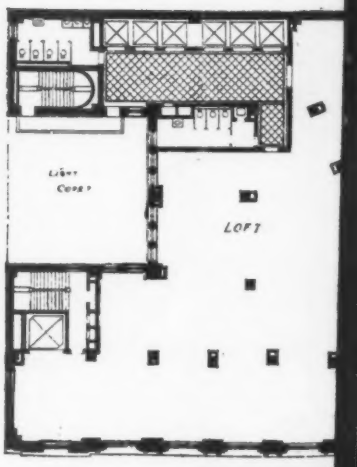
PLAN OF BASEMEN



FIFTY-EIGHTH STREI

SECOND FLOOR P

Typical for 4th, 6th and

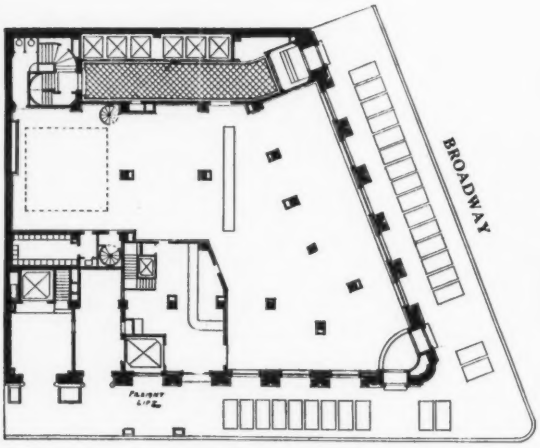


FIFTY-EIGHTH ST

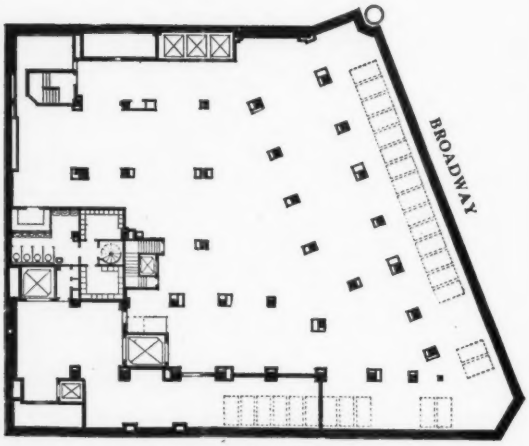
UNITED STATES RUBBER BUILDING, BROADWAY AND FI

MESSRS. CARRERE & HASTINGS,

PLAN OF FIRST FLOOR

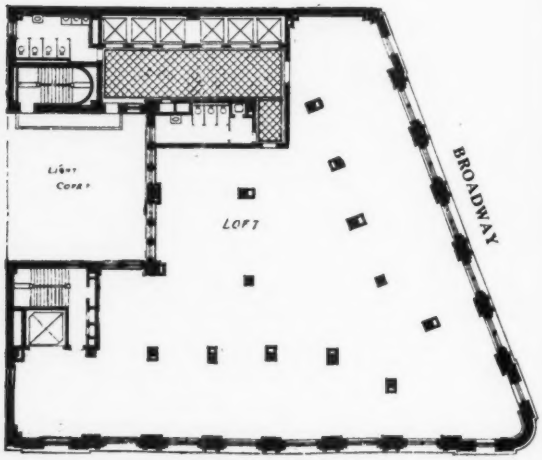


PLAN OF BASEMENT



SECOND FLOOR PLAN

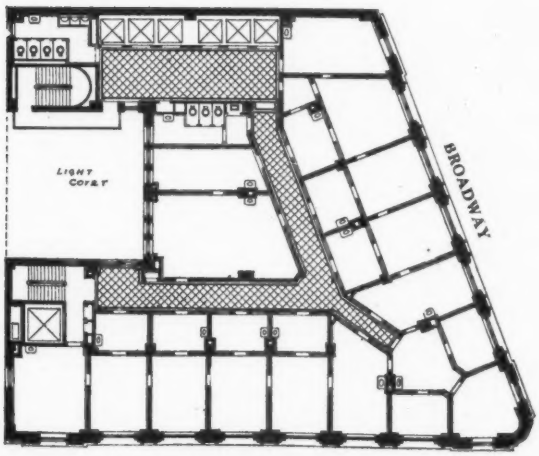
Typical for 4th, 6th and 8th



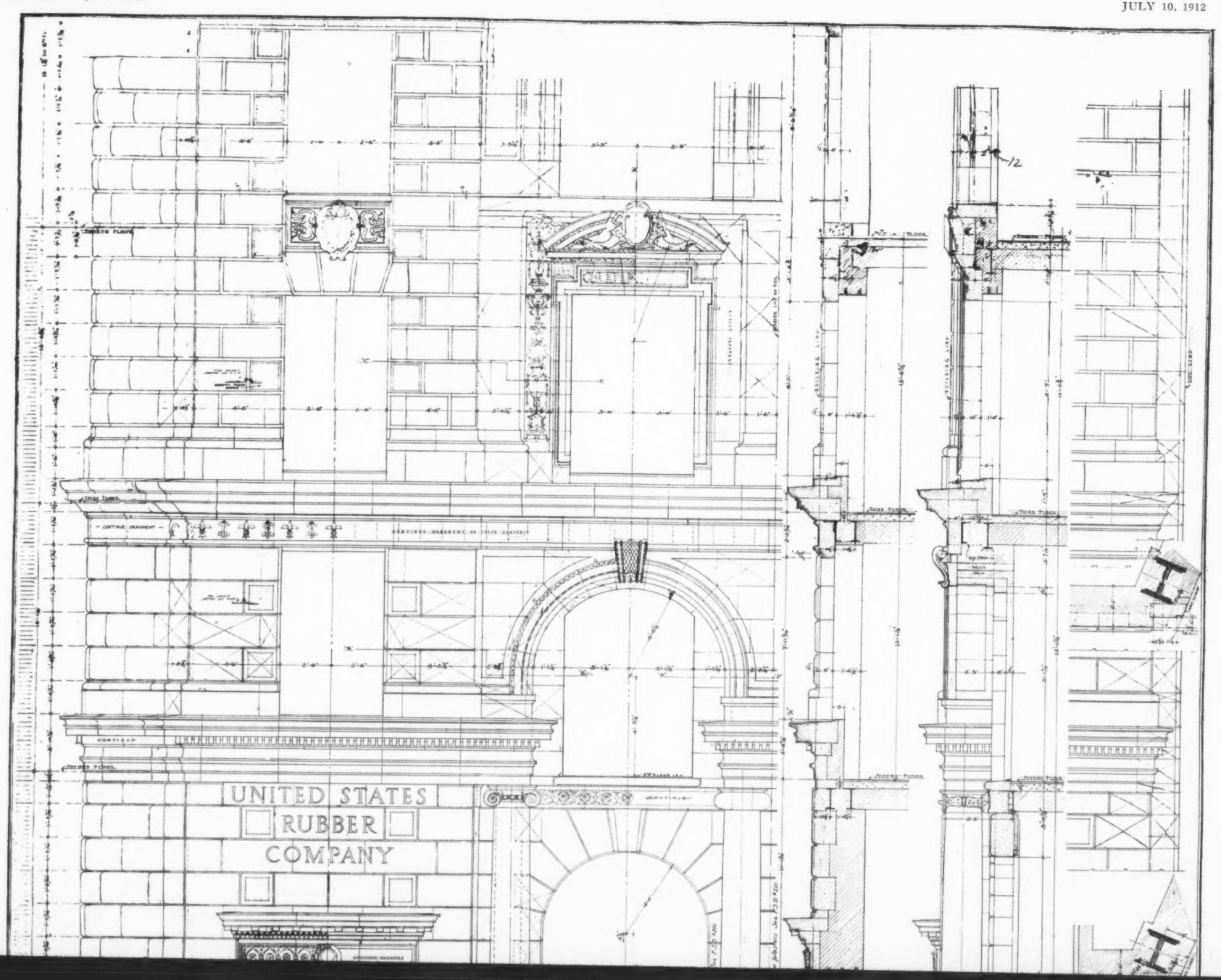
ER BUILDING, BROADWAY AND FIFTY-EIGHTH STREET, NEW YORK CITY

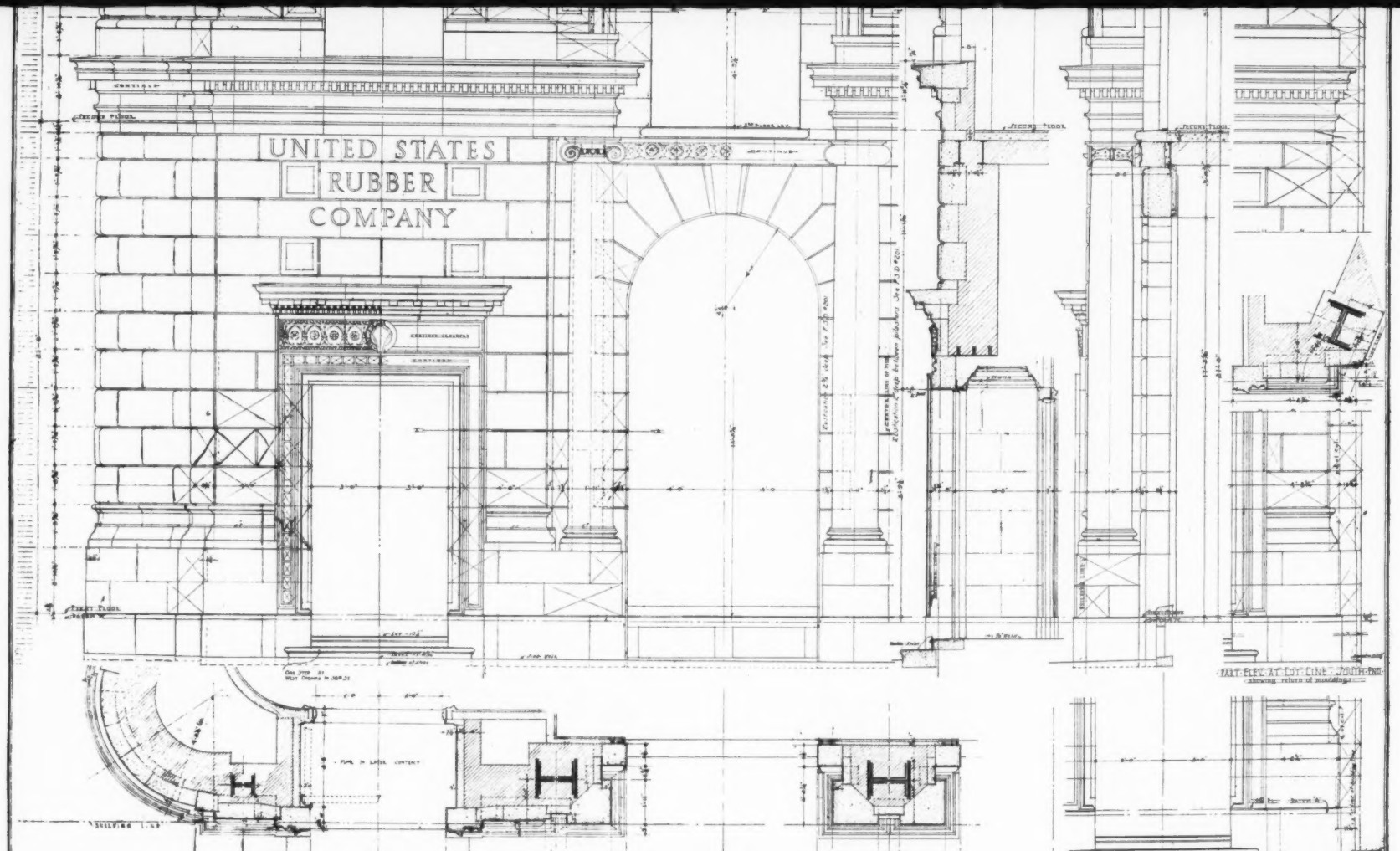
MESSRS. CARRERE & HASTINGS, ARCHITECTS

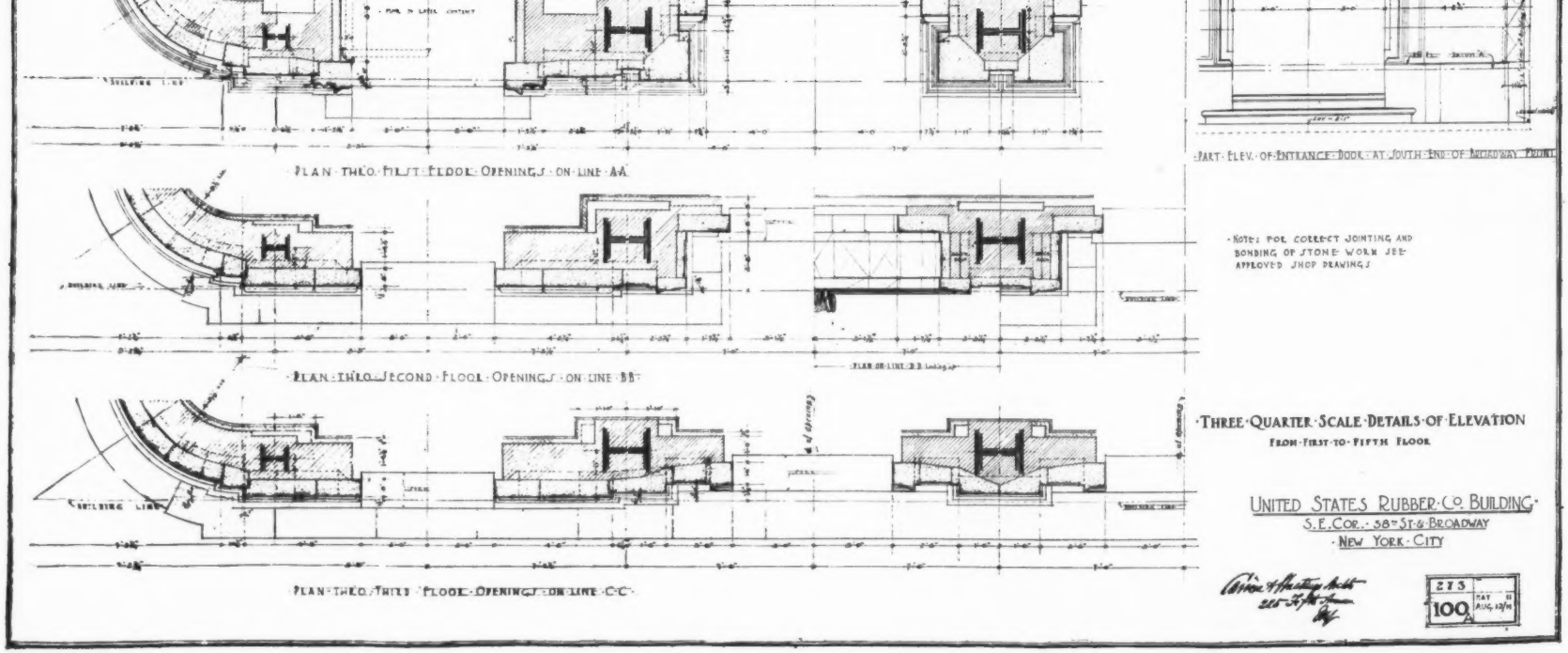
PLAN OF TENTH FLOOR



FIFTY-EIGHTH STREET

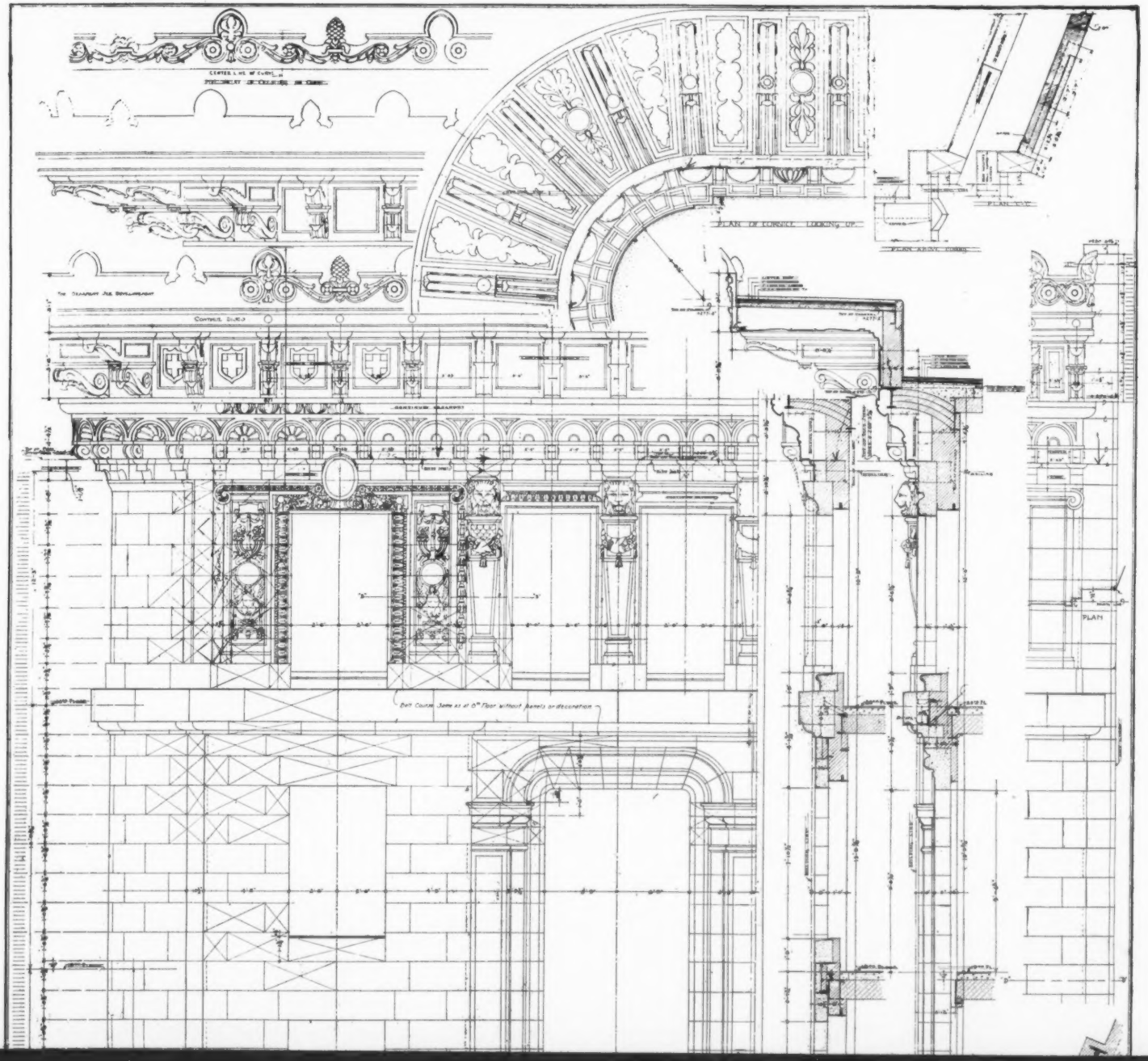

UNITED STATES
RUBBER
COMPANY

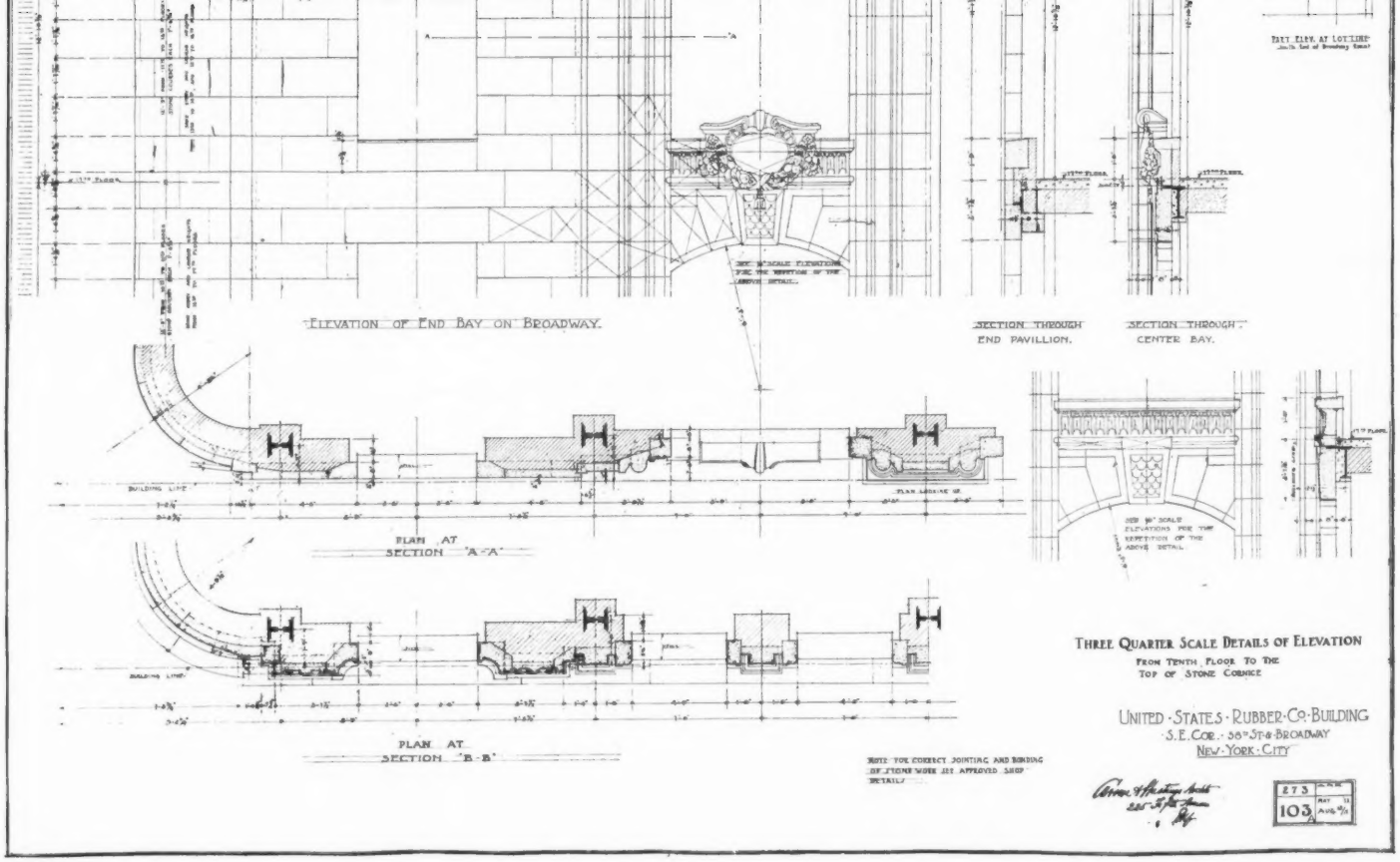

UNITED STATES
RUBBER
COMPANY
SECOND FLOOR
FIRST FLOOR
BUILDING LINE
HALF PLAN AT LOT LINE SOUTH END
showing return of mouldings



UNITED STATES RUBBER BUILDING, NEW YORK CITY

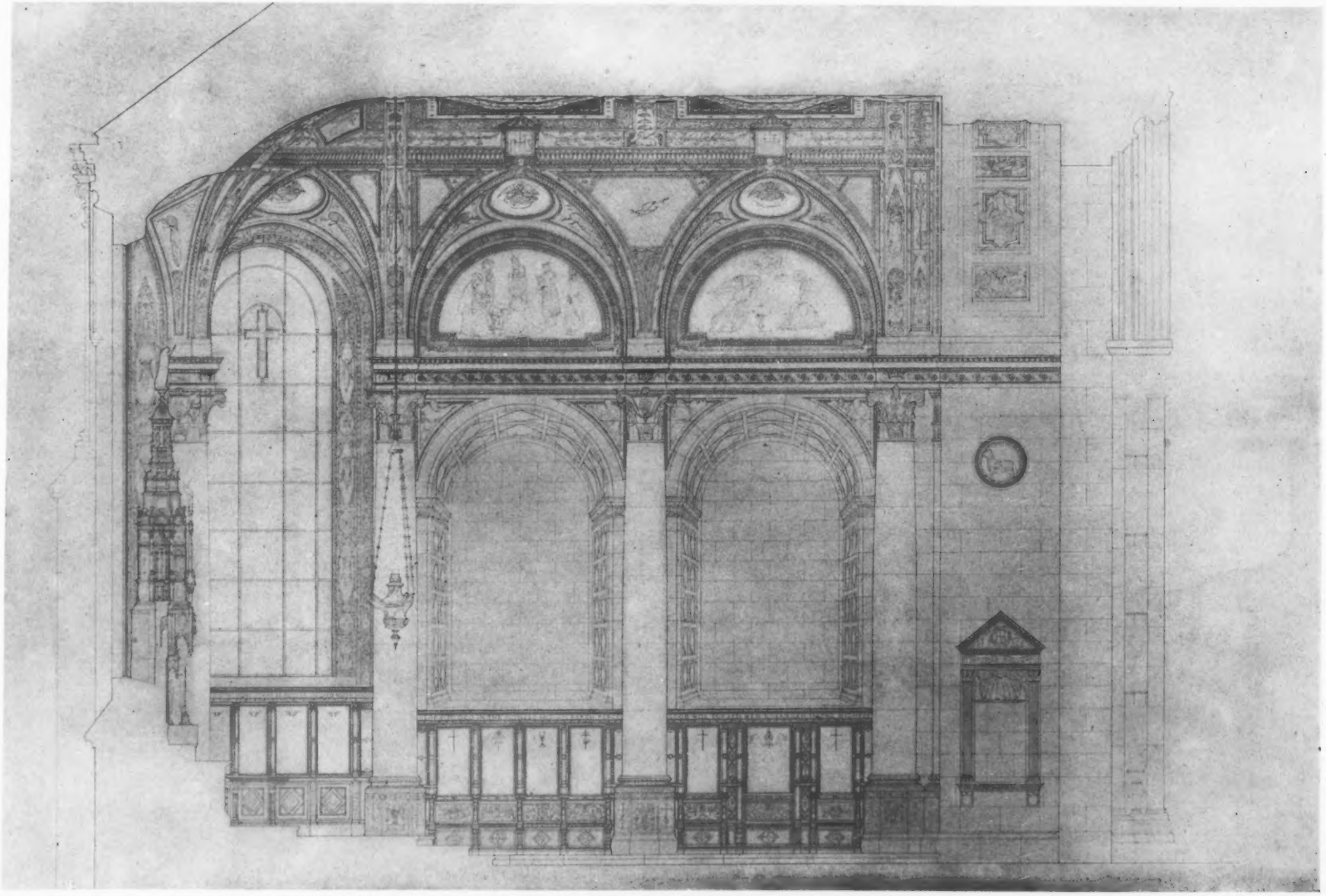
MESSRS. CARRERE & HASTINGS, ARCHITECTS


PLAN OF CORNICE LOOKING UP
PLAN



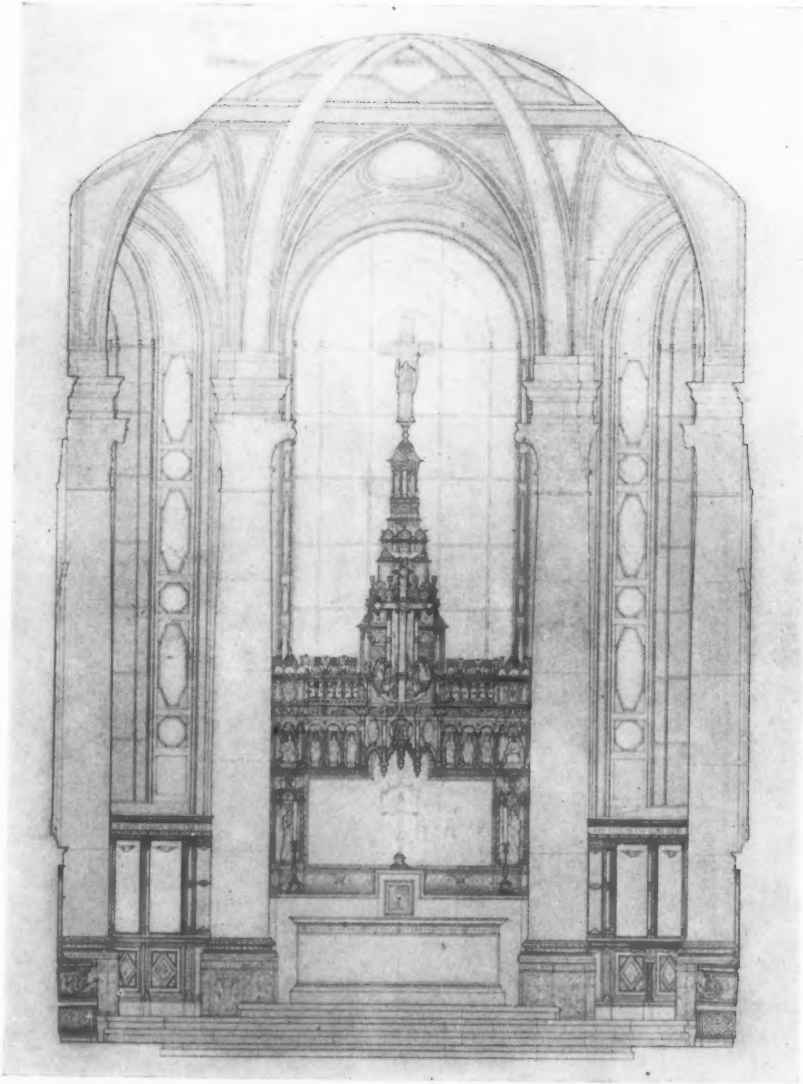
UNITED STATES RUBBER BUILDING, NEW YORK CITY

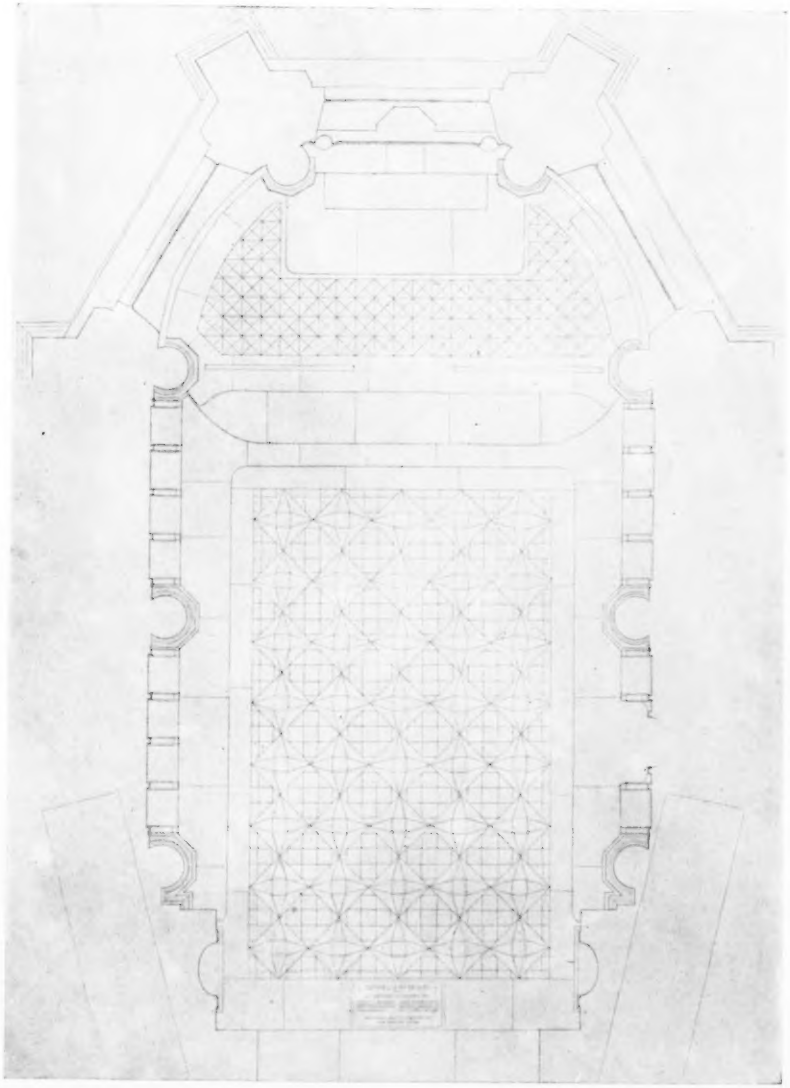
MESSRS. CARRERE & HASTINGS, ARCHITECTS



THE WHITING MEMORIAL CHAPEL OF THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK

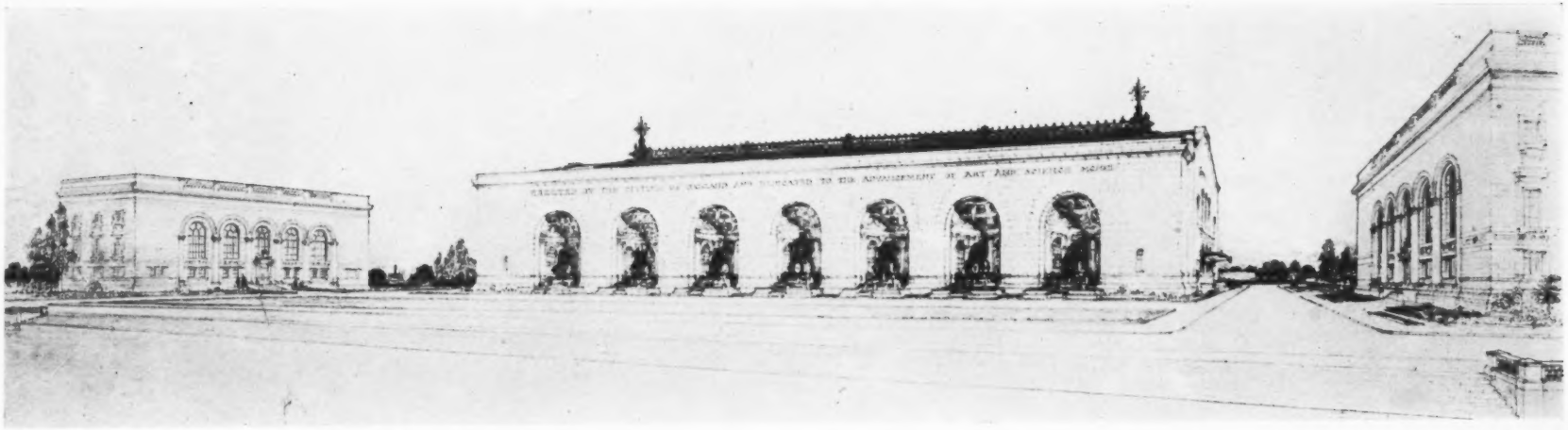
MESSRS. CARRERE & HASTINGS, ARCHITECTS

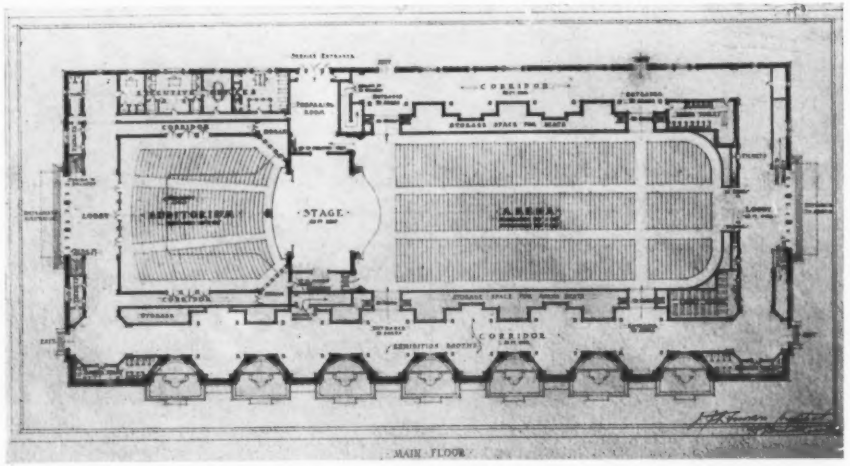




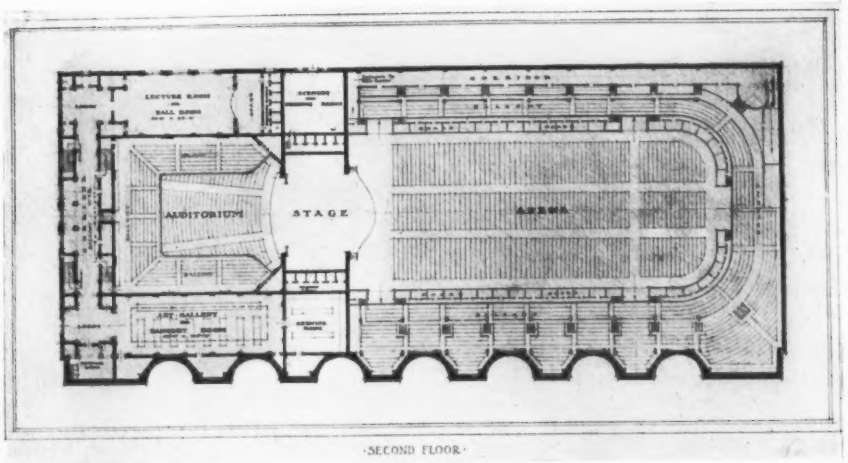
THE WHITING MEMORIAL CHAPEL OF THE CATHEDRAL OF ST. JOHN THE DIVINE, NEW YORK

MESSRS. CARRERE & HASTINGS, ARCHITECTS

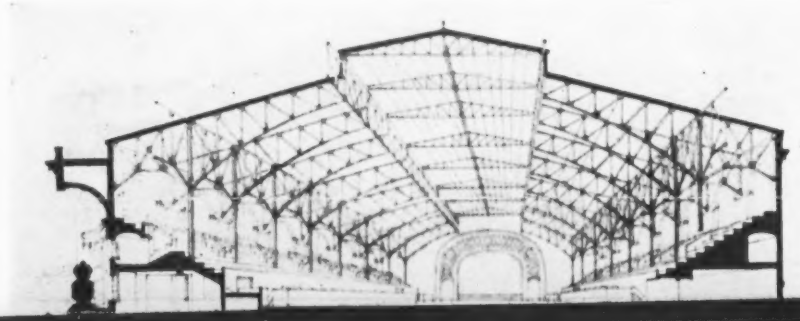


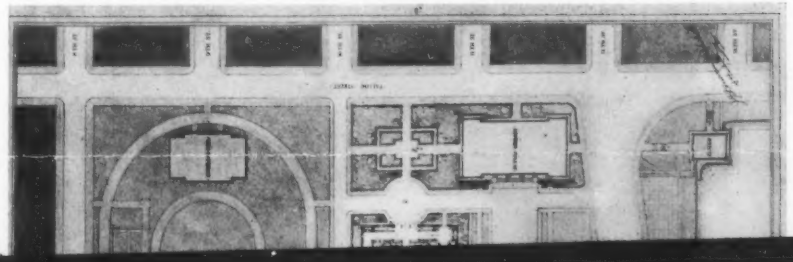


MAIN FLOOR



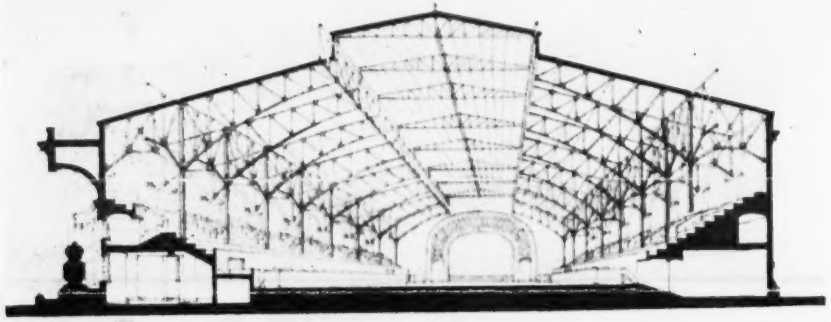
SECOND FLOOR



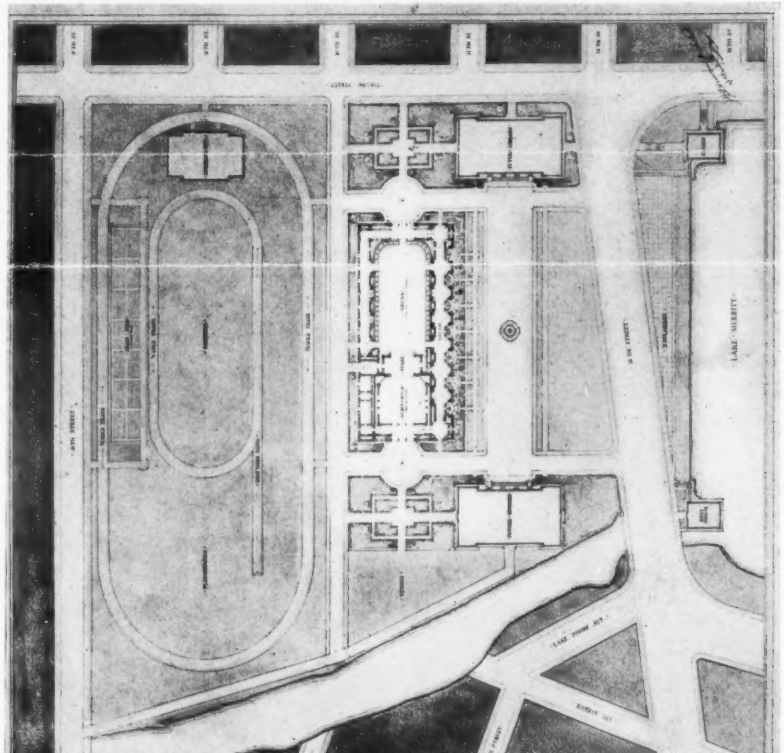


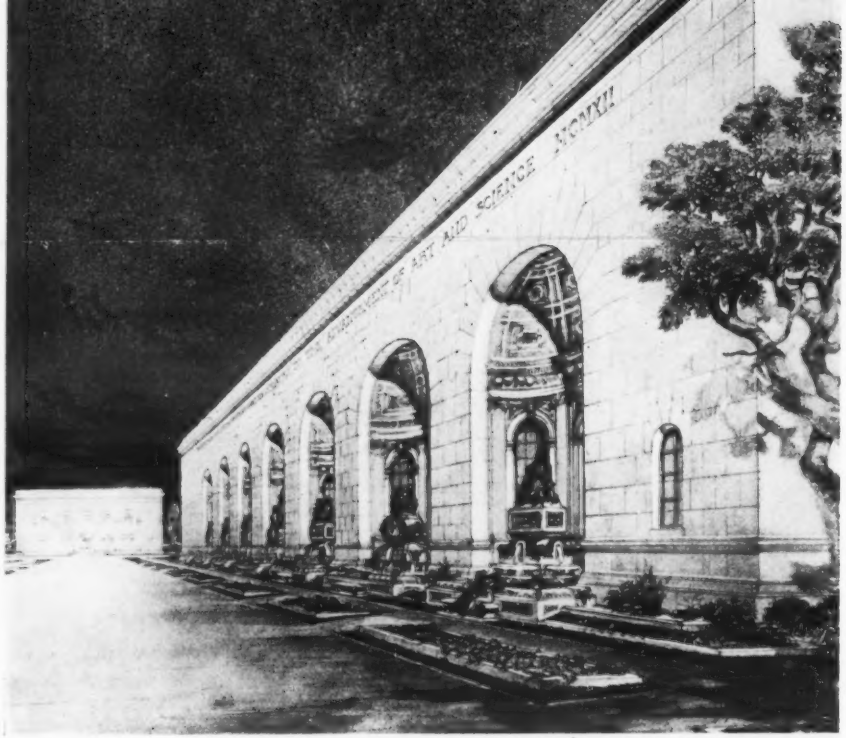
MAIN FLOOR

SECOND FLOOR



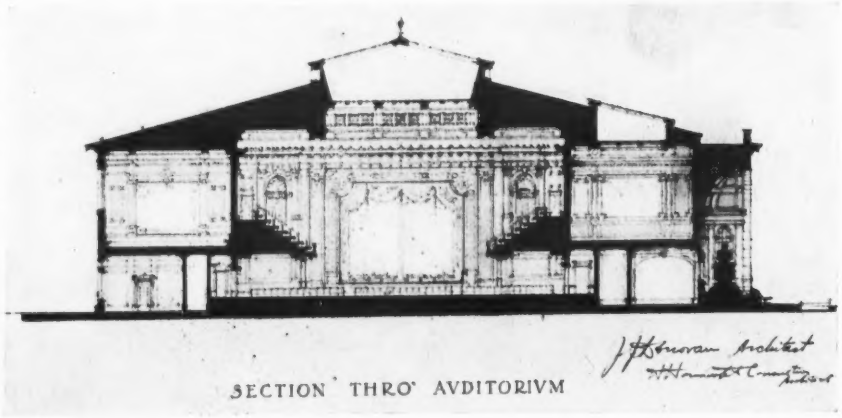
SECTION THRO' ARENA





PERSPECTIVE VIEW OF NORTH ELEVATION

GENERAL PLAN SHOWING DEVELOPMENT OF THE CIVIC CENTER



AUDITORIUM FOR THE CITY OF OAKLAND, CALIFORNIA

MR. JOHN J. DONOVAN, SUPERVISING ARCHITECT

(For description, see text pages)

ORNAMENTAL MARBLE DOORWAY OF A HOUSE IN THE PIAZZA DI. S. MARIA, IN PASSIONE, GENOA, ITALY

(Date on the lintel, 1707)