

THE AMERICAN ARCHITECT

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No. 1917

ELEVATORS

WITH SPECIAL REFERENCE TO INSTALLATION IN FEDERAL BUILDINGS
UNDER CONTROL OF THE TREASURY DEPARTMENT

PART II

By NELSON S. THOMPSON, *Chief Mechanical and Electrical Engineer, Office of Supervising Architect of the Treasury Department*

EMERGENCY exits should always be specified for passenger cars. If cars are in a separate hatchway, the emergency exit should be in top of car, and where two or more cars are in the same hatchway, emergency exits should be provided from one car to another.

A car with two entrances is dangerous and objectionable. When conditions demand two opposite entrances, a collapsible gate or sliding panel in the car should be used at the entrance further from the operator; and entrance door and gate on car should be operated by an approved device which on electric elevators should be made interlocking with the controller. If the entrances to the car are on adjacent sides, the entrance gate further removed from the operator should be protected by some device which on electric elevators should be interlocking with the controller.

SPEEDS

The determination of the speed at which a car should be operated is a matter of judgment, and is governed by the rise of the elevator, whether the service is express or local, the number of stops, and the time taken to discharge passengers.

In apartment houses the car speed under ordinary conditions should be not over 200 feet per minute.

In department stores the speed should not exceed 250 feet per minute, nor should it fall much below that where cars stop at each landing up and down.

In hotels higher speeds should be used, depending on the height of building.

In office buildings below ten stories in height, the speeds will vary from 200 to 400 feet, while with ten to fifteen stories a speed of 400 feet should be allowed.

Express elevators equal in number to the local elevators should be used in practically all buildings sixteen stories high and over, and in very tall buildings may be run at 700 feet to 800 feet per minute until they reach their first landing.

SPACE REQUIREMENTS, ETC.

When elevators of any type are placed at the top of hoistway a seven-foot six-inch clear space should be allowed to nearest point of roof or to the underside of pent-house. This should be increased to not less than ten feet wherever possible, and an I-beam trolley rail with chain fall installed to facilitate the handling of elevator parts during erection or repairs.

The minimum distance to allow from the top landing to top of machine beams for overhead traction elevators is seventeen feet when the speed does not exceed 400 feet per minute, and nineteen feet when the speed is in excess of 400 feet.

In Federal buildings where the drum type of elevator is used the minimum distance from the top landing to the underside of lowest point of roof is made twenty-one feet.

With counter-weighted plunger elevators and electric dumbwaiters the minimum distance allowed from the top landing to the lowest point of ceiling or roof is fourteen feet.

The overhead clearance for electric elevators of all types is one of the most im-

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portant safety items and in Federal buildings it is never made less than three feet, the distance being measured from the top of the car shoes.

The distance from the car floor to the top of the shoes is generally ten feet seven inches, but under favorable conditions the crosshead may be sunk into the roof of cab and this distance reduced to nine feet seven inches.

The minimum depth of pit for any electric drum elevator should be three feet six inches for direct-current and four feet for alternating-current elevators.

The minimum depth of pit for any worm-gear traction or gearless type of elevator should be six feet where oil buffers are used and four feet with spring buffers.

When worm-gear traction elevators are located at top of the hoistway the rear wall of pent-house may be carried up about flush with the rear line of hoistway. At the front of the elevator a space at least equal to the depth of the hatchway must be allowed for the machine, and at each end of the elevator bank a space at least equal to one-half the width of the hoistway of one elevator should be allowed.

The most fertile source of trouble in installing elevators is the failure of architects and engineers to make proper allowance of space for the installation of the machinery, and too much importance cannot be attached to this feature.

The location of an elevator machine directly under the hatchway is extremely poor practice and should be avoided unless space conditions forbid any other course. It is better, however, to locate the machine under hoistway than to use auxiliary leading sheaves.

In Federal buildings where it is necessary to locate a machine under the hoistway, the minimum distance from machine room floor to under side of the pit-pan at first floor is made eight feet six inches; and where conditions will permit of lowering the machine room floor, the distance is made nine feet six inches.

Where the car runs to basement and the hoistway is enclosed in brick walls, the minimum opening in the wall of the shaft for the drum for standard elevators should be eight feet six inches high and four feet wide, and where possible it should be made

the full width of shaft and nine feet high.

If natural light is not available at location of overhead work, convenient and ample artificial illumination should be provided.

Particular attention should be given to the fact that the inside edge of entrance door thresholds must be absolutely plumb from top to bottom so that the distance from car floor to thresholds will be the same at all floors. Where conditions require a projection in the hoistway at entrance door, it should not be made sharp but be flared off at a slight angle.

In locating entrance doors to elevators consideration should be given to the fact that the operator should handle the controller with the left hand and open and close the door with the right hand. The door should slide from right to left. Special efforts are made in Federal buildings to obtain a first-class hanger and operating device on hand-operated doors.

The minimum width of opening for entrance door for a passenger elevator should be two feet six inches. The height of entrance doors should always be seven feet. The two-panel entrance door, each leaf opening from the centre, is a first-class door, and either this type or the two-third opening door, one panel sliding on the other, should be used wherever possible, as the service of an elevator is materially affected by the size and type of the entrance door.

The entrance door should be as light as possible in weight, and be placed close to hoistway so that the operator does not have to let go of the controller in order to operate the door. Where the entrance door is heavy, or where the service is heavy and speed of operation is an item, the compressed-air system of door handling should be installed.

The elevator machine (especially if for alternating-current) should be installed in a machine room with brick enclosing walls to reduce the noise to a minimum.

For each passenger and freight elevator, a grating designed to support a load of seventy-five pounds per square foot should be placed beneath the overhead work.

The best overhead grating is made of two-inch channel irons with perforations set so that a one-inch space exists between channels.

Attention should be given to the design of the enclosing grille work of elevator hoistways and every effort made to have all openings below door transoms kept down to one and one-half inches in width, which will conform to the best practice in this respect.

The platforms of all freight and mail

lifts should be enclosed on three sides and have a ceiling. The distance from floor to ceiling of enclosure on platform should be seven feet. The lower part of enclosure should be one-eighth inch sheet iron or lighter weight corrugated iron, and upper part and ceiling No. 9 B. W. G. galvanized with one-inch diamond mesh.

OTIS ELEVATOR BUILDING

MESSRS. CLINTON & RUSSELL, ARCHITECTS



THE new building of the Otis Elevator Company, illustrated in this issue and built to house the general offices and construction and service departments of the company, is located on Eleventh Avenue, between 26th and 27th Streets, facing the Hudson River, and occupies the entire block with a frontage of 197 feet six inches on the avenue.

Preliminary borings made for the foundation showed a water level seven feet below the curb and rock at an average depth of seventy-five feet below the surface. Fourteen hundred piles to carry both the wall footings and the column foundations were driven. These piles have an average cut-off of seven feet below curb level. The piles have a concrete cap standing to a depth of six inches and carried up from two to three feet. Just above the tops of the piles in all column footings and foundations were placed three-quarter inch square twisted bars and on top of the column footings the usual grillage beams and bearing slabs for carrying the columns, which are built of plate and angle construction throughout. The small basement on the northeast corner has its floor fourteen feet below the curb, necessitating the use of waterproofing both for surface water and hydrostatic pressure. This necessity was cared for in the usual manner by means of brick protected walls and five to eight plies of waterproofing felt for surface water and an extra thickness of concrete to provide for hydrostatic pressure.

The exterior of the building is of tapestry brick of a golden color. The façade is broken by heavy pilasters. The decorative effect of the application of the brick in the façade is well shown in the accompanying illustration. All joints between pilasters are raked to a depth of one-half inch. The base is four feet in height and is of a pink granite. The sills and all other stone-work of Indiana limestone. The roof carries a heavy pressed copper cornice of good design. This cornice extends eight feet beyond the building line. The first floor window frames and sash are of steel construction on the avenue and street fronts, with pivoted ventilating sash. Above this point all frames and sash are of wood and for the light court on the east side of the building kalamein iron frames and sash have been used. These are glazed with polished plate wire glass. On the roof are located the pent-houses, one of which, thirty-three by fifty-five feet, contains the kitchen and testing observation floor. Above the tank room is a 30,000-gallon gravity tank, supplying the automatic sprinkler equipment.

The first story has a mezzanine floor at the east wall. This story is twenty feet six inches from floor to floor. The second story is used for a stock room, having a height of sixteen feet and a carrying capacity of 300 pounds per square foot. In the third story, fifteen feet in height, are located the draughting rooms. All other floors, except where stated, have a carrying capacity of 120 pounds per square foot and a story height of thirteen feet eight inches, except the seventh story which is



OFFICE OF VICE-PRESIDENT

twelve feet in the clear. Between the seventh story ceiling and the roof is a four-foot ventilating attic. The columns divide the building into bays, as shown. One of these bays, the entire height of the building, has on each floor a fireproof vault for the storage of documents, tracings, etc. The floor and roof arches are of reinforced concrete construction of the Roebling type. On top of the floor arches are beveled sleepers, filled in with cinder concrete and carrying seven-eighth inch maple flooring in office floors and two-inch pine flooring on the second floor.

The garage occupies the east end of the building on the 26th Street side and has three stories and a mezzanine. This garage is entirely sealed from the office portion of the building and is entered on 26th Street only.

The building is completely equipped with sprinklers inside, and on the exterior there are open heads to form a water curtain over all court windows where there is exposure from adjoining buildings. In addition to

the primary supply, already referred to, there is a 750-gallon Fire-Underwriters' pump. The building throughout complies as to fire protection with every standard of the Board of Underwriters. To reduce to a minimum the damage done by water in case of opening of sprinkler heads, two layers of tarred felt, well mopped and stuck together with asphalt, have been placed under all flooring.

Elevator installation, while designed for the best handling of passengers, is also somewhat of a display installation, in that various types of machines have been used.

The building is heated by three 200 horsepower tubular boilers and the usual equipment of boilers for hot water, fire pumps, vacuum installation, etc. All equipment is electrically operated from an outside service.

This building is interesting as it combines not only an office building with every latest improvement in buildings of that character, but it also provides machine and forge shops with the heavy equipment

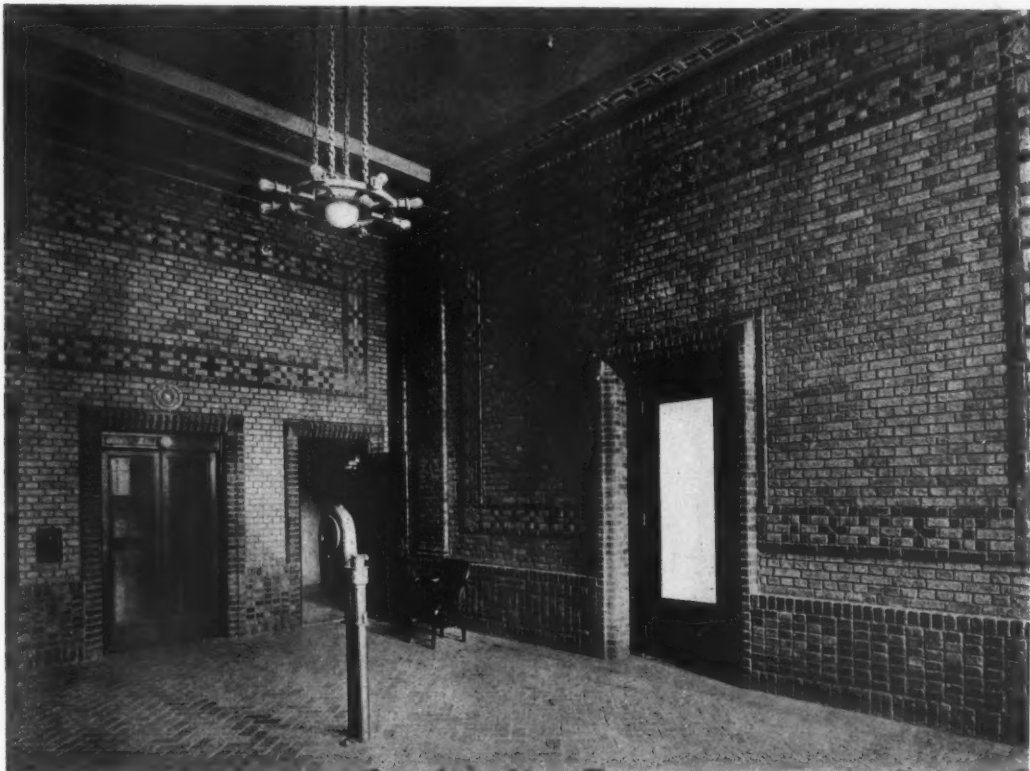
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of shops of this type, testing shafts, draughting rooms and all the various complex departments of a large manufacturing industry. The nature of the occupancy may be described as follows:

The first floor is a machine and forge shop for heavy work; the second floor is devoted to light machine work and is a stock room for elevator parts used in connection with the construction and service departments. The five upper floors are devoted entirely to the company's offices. The third and fourth floors are trimmed and partitioned in plain red oak, the fifth, sixth and seventh in Mexican and African mahogany. In order to obtain an extra well-lighted top story, studio skylights have been added in some offices and corridors, the skylight effect being obscured by wood frames and sash glazed with Florentine glass at the ceiling level. On this floor and at the east end is the dining room for the company's employees, also the Patent and Law Library.

The special equipment of the building is interesting. A testing hatchway for all elevator appliances and fully loaded cars with a rise up to 125 feet with floors for observing tests; a blue print and drying room; a pneumatic tube central station system, having fifteen outlying stations and used for the distribution of mail and inter-office correspondence; a switchboard and signal board which indicates at a glance whether certain employees are in or out of their offices; a telautograph installation for the rapid and accurate transmission of messages and a thoroughly equipped telegraph station. Also telephone tie lines for connections with the factories of the company at Yonkers, N. Y., and Harrison, N. J. On each floor there are two drinking fountains, supplying filtered ice water, beside each of which is a distributing machine furnishing individual drinking cups in compliance with the New York State law.

The garage is equipped with all necessary or desirable facilities for main-



DETAIL OF MAIN ENTRANCE LOBBY

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taining the cars used by the company.

The building was constructed by The Thompson-Starrett Company under the supervision of Clinton & Russell, Architects.

RECENT LEGAL DECISIONS

NECESSITY FOR GUARANTIES BY CONTRACTOR

A building contract provided only for the furnishing of the materials as specified, for executing the work as outlined and specified, and completing the structure within the time designated and to the satisfaction of the architect. No mention was made in the contract of the giving by the contractor of bonds guaranteeing certain parts of the work, though this seems to have been mentioned in the specifications. Payments were made to the contractor without furnishing by him of guaranties, and the owner did not urge as a defense to a suit upon the contract, until after the admission of the specifications in evidence, that the contractor was not entitled to sue

until he had furnished the guaranties. The contractor tendered guaranties before this defense was raised. It was held that the contractor could sue for the balance due him without first furnishing the guaranties. *Corse v. Linke*, Wisconsin Supreme Court, 133 N. W. 598.

DISCHARGE OF SURETY ON GOVERNMENT CONTRACTOR'S BOND

On the default of a federal building contractor, the government took possession of the work. After an interval of more than a year it entered into a new contract with a third person, which was different in many particulars from the original contract. During that time there was a change in the cost of labor and building supplies. It was held that the surety on the contractor's bond was discharged from liability, notwithstanding that the original contract authorized the government to make changes and alterations in the work.

U. S. Fidelity etc. Co. v. United States, Circuit Court of Appeals, 194 Fed. 611.



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A LONG STEP BACKWARD.

AFTER having had recent occasion to favorably commend a number of competitions for notable buildings, conducted along lines prescribed by the American Institute Code of Competitions, which apparently were recognized as wise and equitable by those having the matter in charge, it comes somewhat in the nature of a shock to receive through a correspondent the program of competition issued by the High School Building Committee, for the purpose of selecting plans and an architect for the proposed new High School building at Williamsport, Pa. To all appearances the Building Committee in question is profoundly ignorant of the advance in methods made during recent years in the handling of such matters, or else is determined to conduct the competition in accordance with its own ideas, regardless of public opinion.

The program as issued is fairly typical of similar documents prepared some twenty years ago, before the subject of competitions had received very careful attention by the American Institute as a body, or for that matter by individual architects, except in rare cases. To illustrate we quote below some of the provisions of this surprising program.

"This competition is to be conducted by the High School Building Committee, appointed for this purpose. . . The judges

for this competition will be said special Committee, who reserves all rights relative to choice. . . The Committee further reserves the right to reject any and all plans submitted and to take counsel from an expert architect, if it so desires. . . . Three things will be considered by the Committee in deciding, seeing first of all if the competitors are competent. Said three points are as follows: First: Architectural merit of design; Second: Its adaptability in accommodating the modern high school as hereinafter set forth; Third: Economy in construction. . . . The maximum sum available for the complete erection of this building, including heating, temperature regulation, ventilating, plumbing, electric wiring, gas piping, decorating and architect's fees is \$200,000, and all designs must be made to come within this limit. . . . Each architect will be allowed a reasonable time in which to explain his drawings. . . . The architect finally appointed will make the detailed plans and specifications and exercise such inspection and superintendence and shall render such other assistance in the construction of said building as may be required of him. . . . Changes and alterations requested by the Board shall be made in such plan by the architect or architects without any additional compensation from said Board. For full compensation for these services, in case said building is erected, including all changes and alterations of the same, as hereinafter specified, he shall be paid a commission of 5 per cent, said commission to be based on a maximum amount of \$150,000."

From the foregoing, it is readily apparent that practically every essential requirement of justice and fair play in the conduct of an architectural competition has been ignored. Of course, there is no possibility of reputable or competent architectural service being secured under such conditions, and the regrettable feature of the whole matter is that the city of Williamsport will thus be made to suffer through the ignorance or lack of qualification on the part of those responsible for the manner in which the matter is being handled. The sooner the campaign of education now being waged can be carried to a point where such unfortunate mistakes as the one herein cited will become but memories of an unenlightened period happily

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passed, the sooner our architectural development will follow lines more nearly conforming to standards of taste recognized by people of culture and education.

GEORGIAN WOODWORK IN THE METROPOLITAN MUSEUM OF ART

THE acquisition by the Metropolitan Museum of Art in this city of the woodwork and interior fittings of two Georgian rooms, attributed to Samuel McIntyre, who is known as the architect of the Old South Church in Salem, Mass., will doubtless be regarded with much satisfaction by members of the profession.

Announcement is made by the Museum authorities that these excellent examples of Georgian woodwork and fittings will be utilized to provide a proper setting for

the Bolles collection of American furniture presented to the museum in 1900 by the late Russell Sage. This action in conserving as far as possible good examples of what is perhaps the most interesting period of architectural development in America appears highly commendable. It is regrettable that it is not possible, from lack of space, to provide a proper setting and to more largely extend the work of conservation in this direction. Many excellent examples of colonial woodwork still extant and not yet acquired by collectors, might with advantage find a permanent resting place in some of the municipal and state buildings throughout the country. There, by reason of its very excellence, it would inevitably exert a good influence on the character of the modern work that would eventually surround it.



PURCHASING AND ORDER DEPARTMENT

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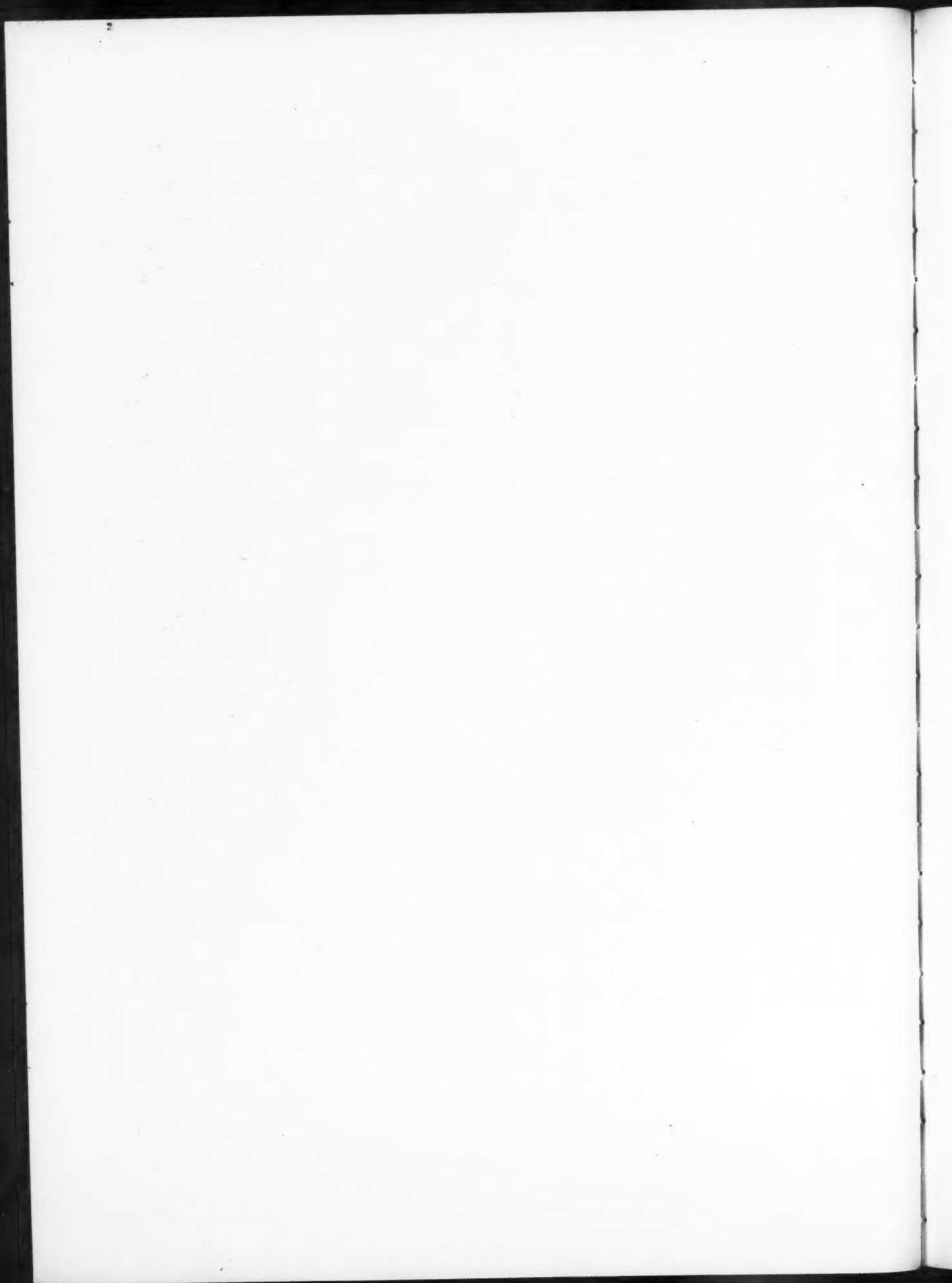
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DETAIL OF LOWER STORIES

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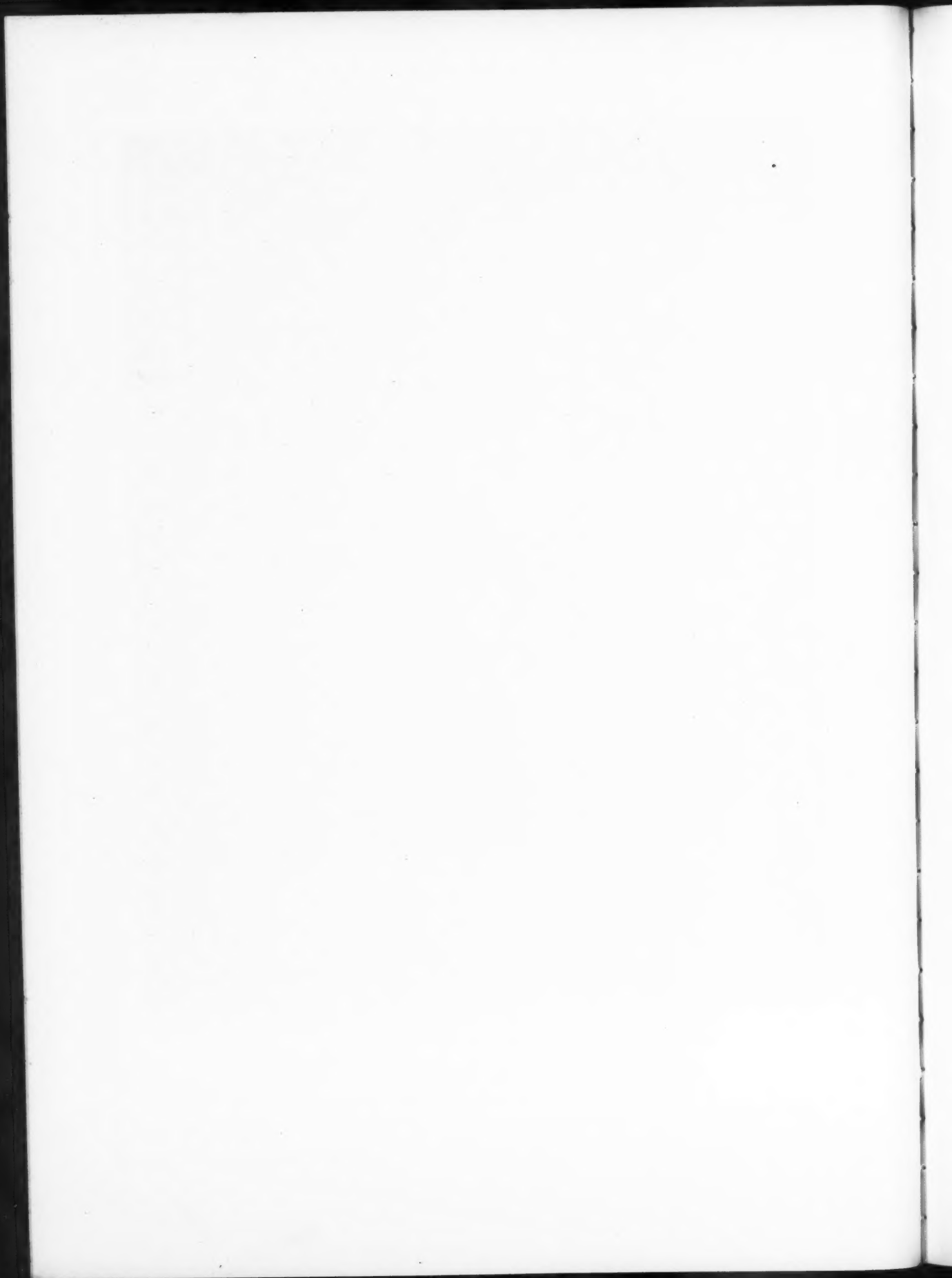


MAIN ENTRANCE

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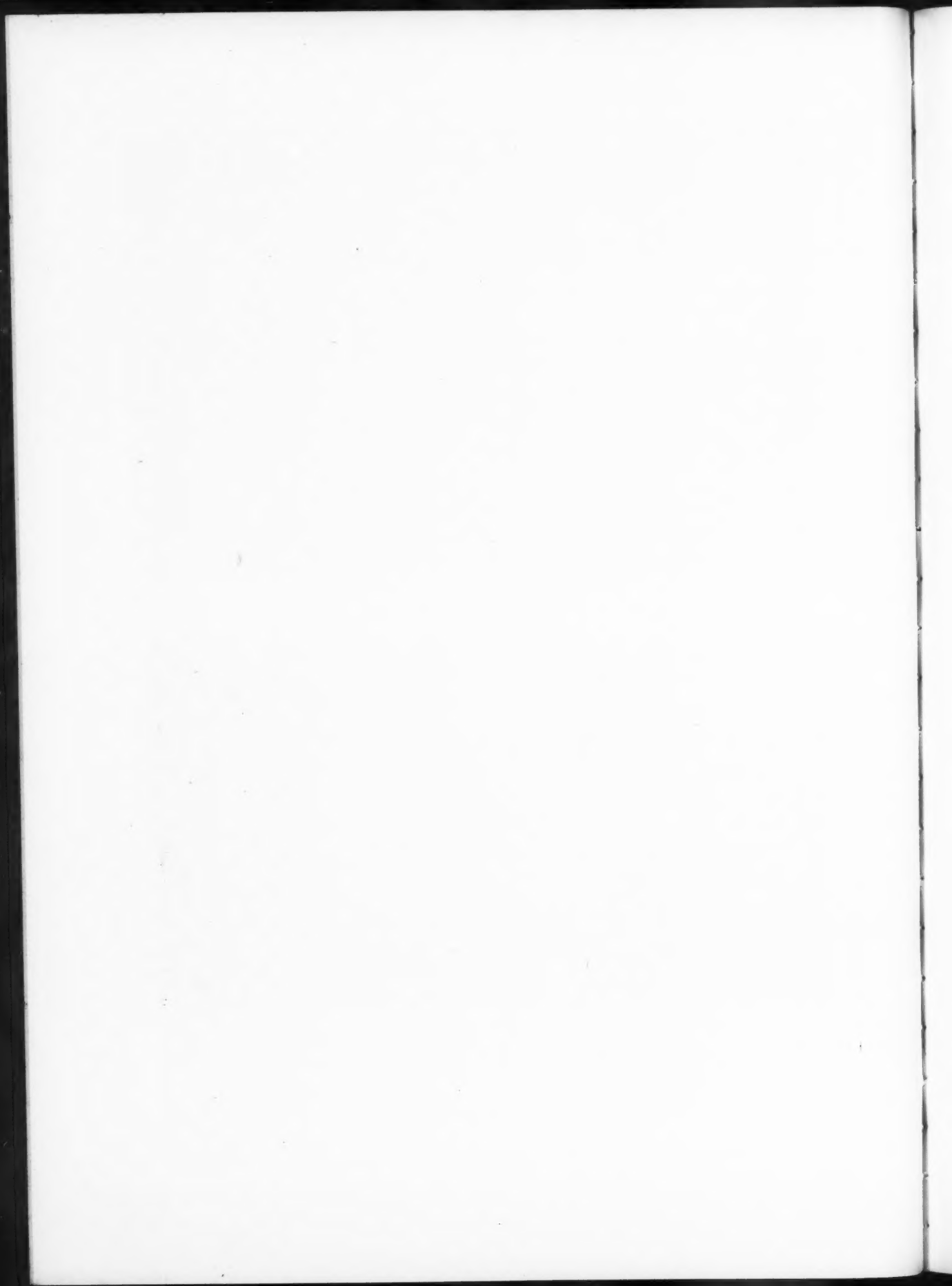


LOBBY, MAIN ENTRANCE

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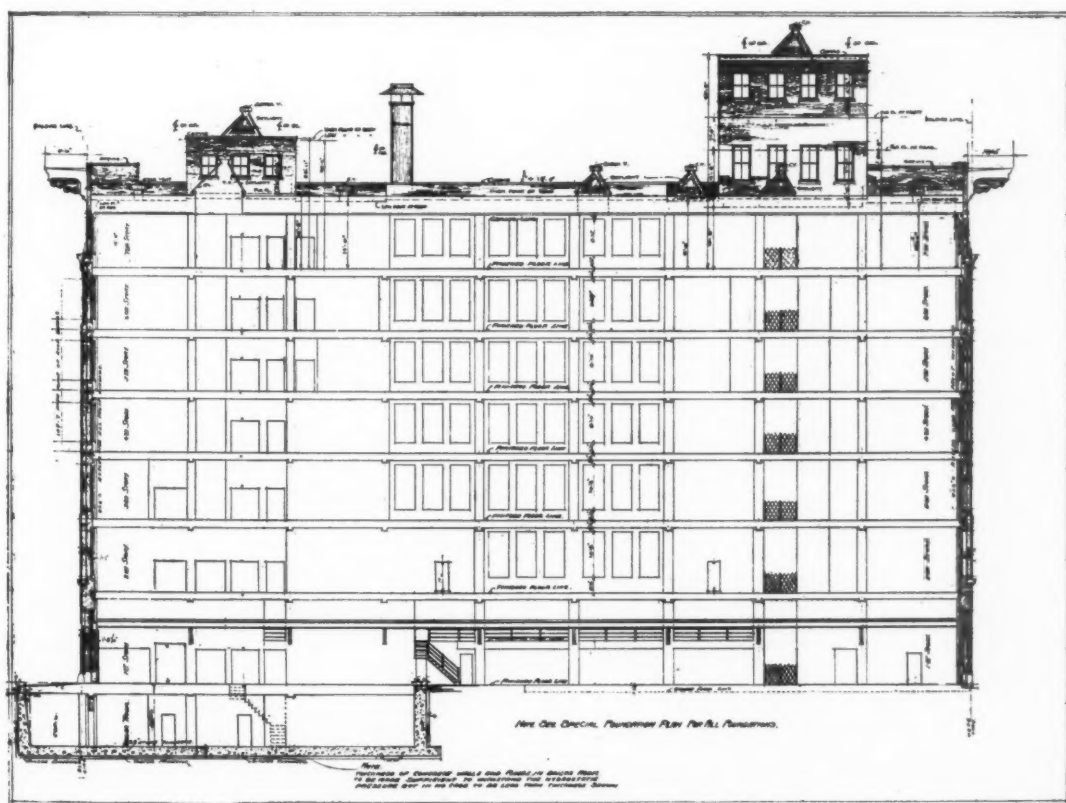
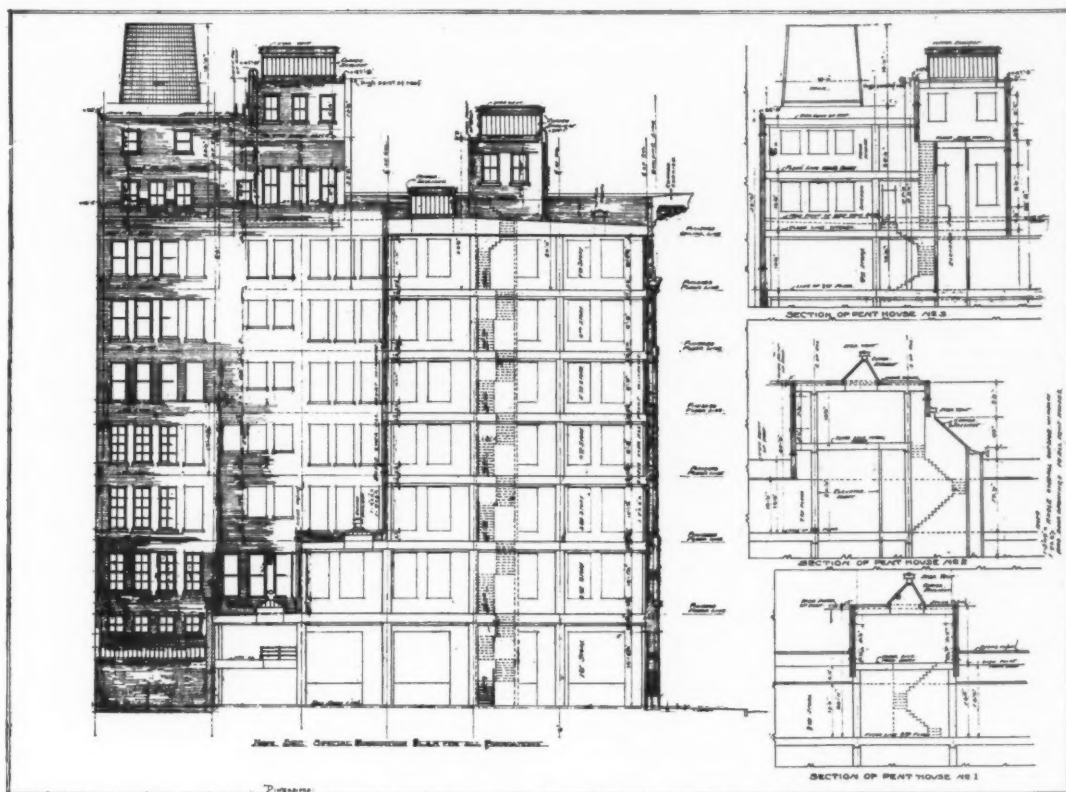


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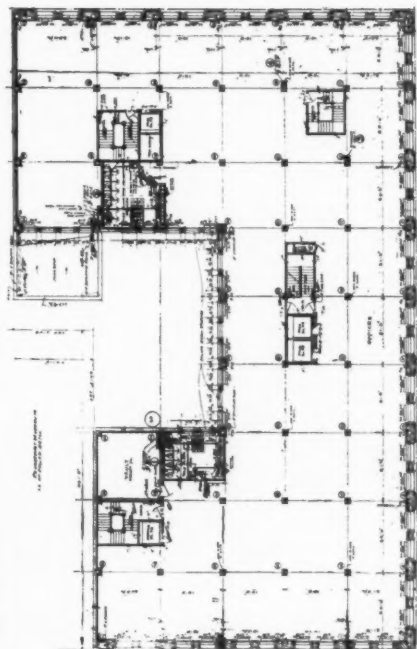


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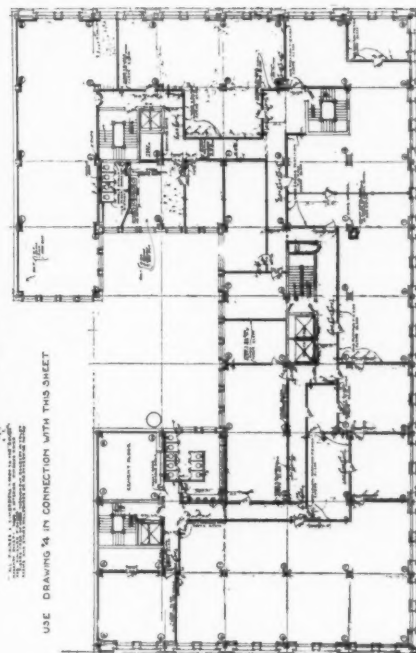
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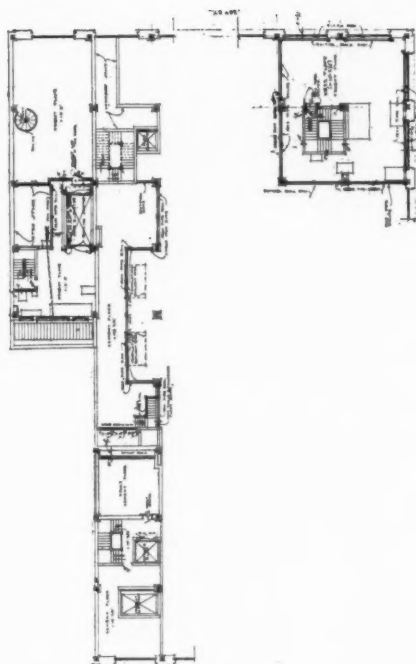
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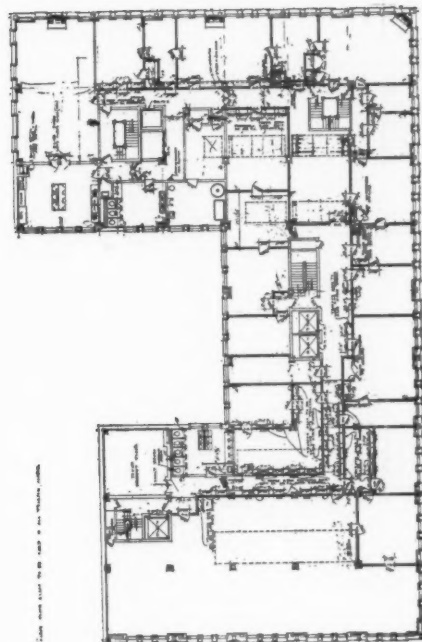
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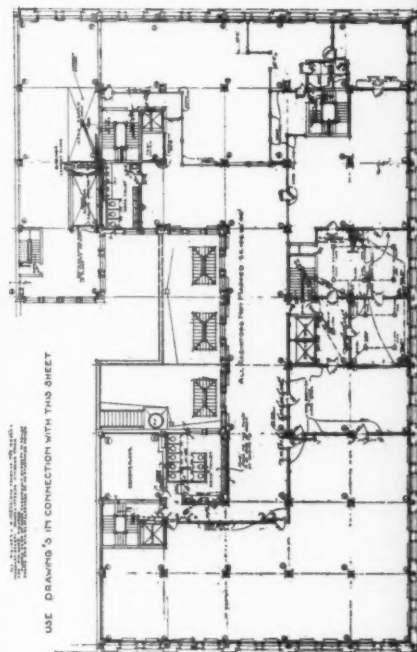
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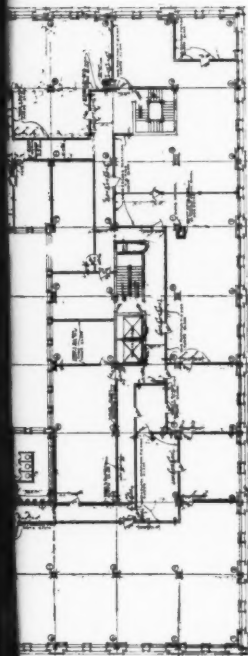
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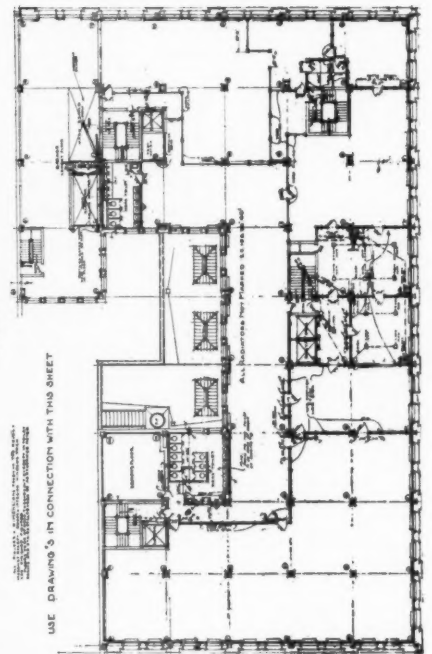
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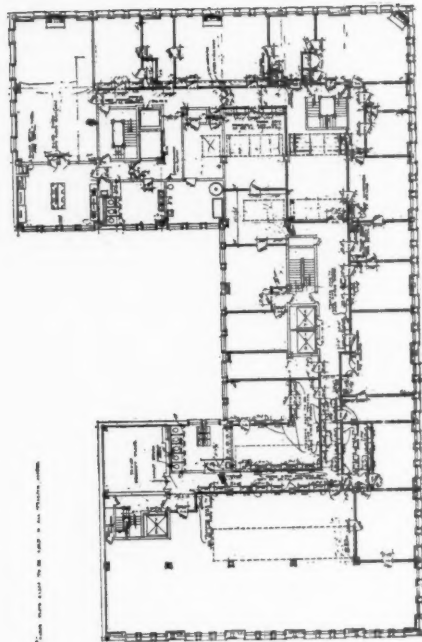
1st FLOOR PLAN

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 UNLESS OTHERWISE SPECIFIED

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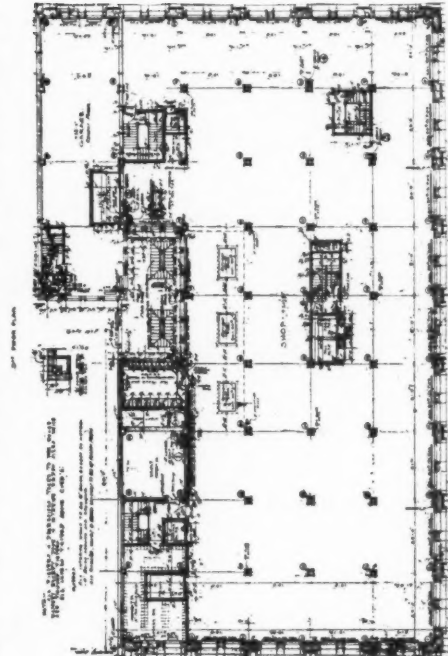
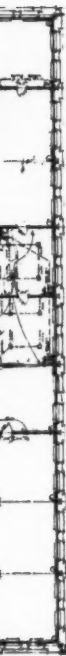


2nd FLOOR PLAN

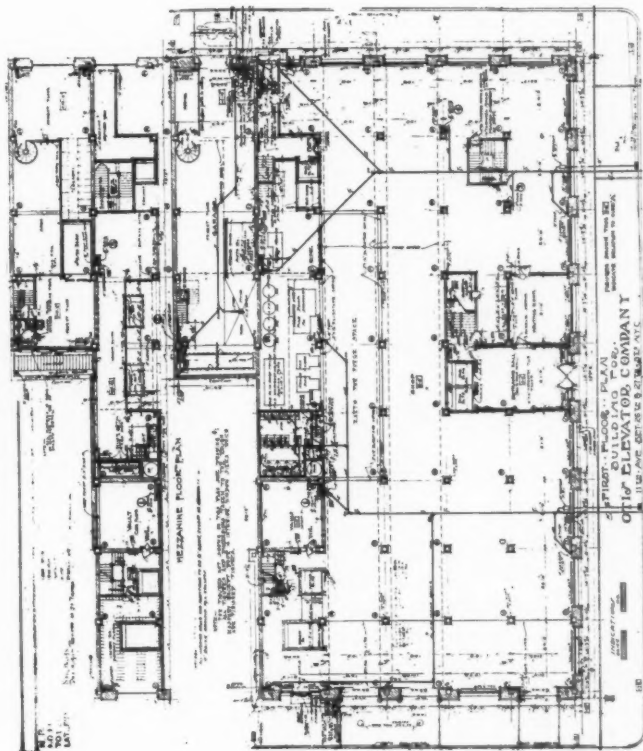


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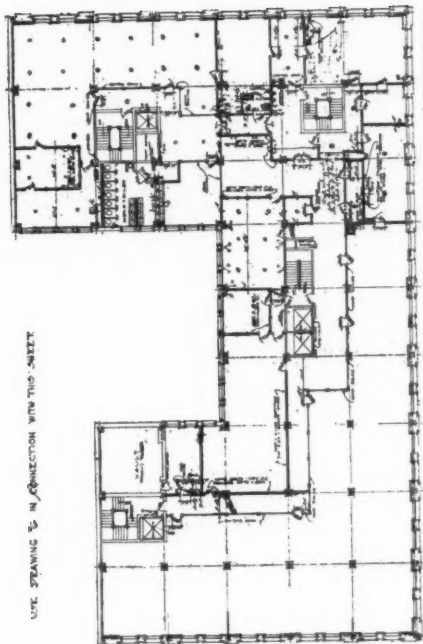
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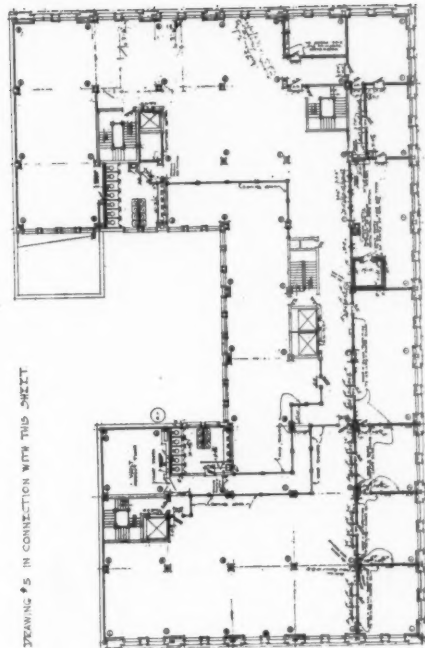
1ST FLOOR PLAN



2ND FLOOR PLAN



3RD FLOOR PLAN



4TH FLOOR PLAN

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FIRE-PLACE IN DINING ROOM

THE DAVANZATI PALACE, FLORENCE, ITALY—VI