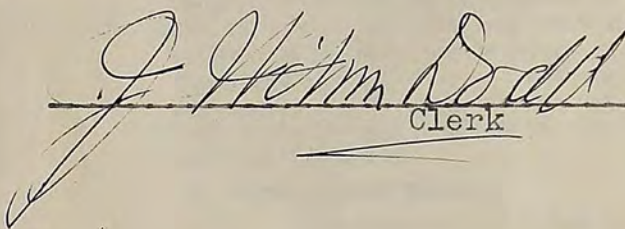


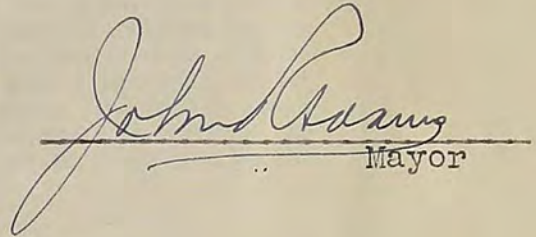
After discussion of this matter, Mr. Conger moved that the Mayor and Council, the Town Clerk and Treasurer and the Corporation Counsel take membership in the Prince Georges County League, and that funds be appropriated for same. Motion seconded by Mr. Huck and approved.

Mr. Harrigan, Chairman of the Municipal Works Committee, stated that the various bids for street construction and curb and gutter construction, had been gone over carefully, and it was found that the Contee Sand and Gravel Company were low bidders on this work, and moved that the contract be awarded to the Contee Sand and Gravel Company. Motion was seconded by Mr. Conger and approved.

On motion, properly seconded and approved, Council adjourned at 10:40 P. M.

Indexed


Clerk


Mayor

SPECIAL MEETING
MAYOR AND COUNCIL
Sept. 26th, 1939.

Meeting called to order at eight o'clock P. M. Those present were Mayor Adams, Councilmen Conger, Duehring, Harrigan, Huck and Taft. Corporation Counsel, D. D. Lamond and Building Inspector Frye met with the Council, the purpose of the meeting being to discuss the adoption of a new Building Code for the Town.

Mr. Frye stated that he had gone over the old Code and made numerous changes. Corporation Counsel Lamond stated that he had spent some time in going over the changes made by Mr. Frye, and believed that same was now in shape for proper legal adoption.

After discussion of the matter by those present, Mr. Taft, presented the following Ordinance and moved its adoption, same being the Building Code for the Town of Takoma Park, Maryland:-

(OVER)

Ordinance No. 693

BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE TOWN OF TAKOMA PARK, MARYLAND:-

Sec. 1. Pursuant to the provisions of the Code of Public Laws of Maryland, 1930, Article 16, Title "Montgomery County," sub-title "Takoma Park," Sections 954-983, and Article 17, Title "Prince George's County," sub-title "Takoma Park," Sections 947-976, and amendments thereto, and the authority thereof, that the following rules and regulations for the construction of buildings within the Town of Takoma Park as established by the Code of Public Local Laws of Maryland, 1930, and amendments thereto, be and the same are hereby established.

Article I. Administration

A. DUTIES OF INSPECTOR OF BUILDINGS AND STAFF.

1. The Inspector of Buildings shall be charged with the oversight and inspection of buildings and the enforcement of these regulations and with such other duties in respect thereto as the Mayor and Council of the Town of Takoma Park may assign to him.

Applications for permits shall be made to the Clerk of the Town of Takoma Park, and permits shall be issued by him upon prior approval by the Inspector of Buildings. The Inspector of Buildings shall issue all certificates, and notices under these regulations for new structures, alterations or additions to old buildings or structures, including plumbing, high and low pressure boilers, heating, ventilating, elevators and fire escapes; keep on file all plans of buildings for assemblage and notices received; keep blanks for permits, certificates, notices, applications, and complaints; and he shall make an annual report of the operations of his office and such other reports as may be required by the Mayor and Council of the Town of Takoma Park.

He shall require the intent of these regulations to be observed in all matters affecting structures not specially set forth herein, and order such reconstruction as he may deem necessary for safety. The Inspector of Buildings shall have no power to amend these regulations. He shall not give engineering advice on plans and specifications submitted.

In the absence of the Inspector of Buildings, an assistant Inspector of Buildings is authorized to act; and, in the absence of the Deputy Inspector the said assistants in the order to be designated from time to time by the Mayor and Council of the Town of Takoma Park and are authorized to perform such of his duties under the Building Regulations as may be assigned to them by the said Inspector or by the Mayor and Council of the Town of Takoma Park.

2. The Inspector or Assistant Inspectors of Buildings, shall examine all buildings in course of erection, alteration, or repair as often as necessary. They shall see that the work is done in accordance with law and regulations; that the materials used are up to the standard required by these regulations; and that the work is done in a substantial manner and is of sufficient strength and solidity to insure safety when used for the purpose for which it was designed. They shall examine any building when application is made for a permit to raise, enlarge, or build upon it, and make a record of

its condition. They shall make written daily reports for file in the office of the Inspector of Buildings and also report all violations of any regulations or law which the Inspector of Buildings is required to enforce, together with the street and number where such violations are found, the name of the owner, agent, lessee, occupant, architect, contractors, and master mechanics, and all other matters relative thereto. At final inspection, the assistant inspectors shall see that load placards are posted when required.

3. Special Inspectors of Buildings.

In the construction or alteration of places of assemblage or in every building having more than 20,000 square feet of reinforced concrete or containing more than 100 tons of structural steel, the building owner, in addition to paying fee required by these regulations, shall employ a competent Inspector of construction for this building whose duty it shall be to see that the plans of the building as approved by the Inspector of Buildings are carried out in their full intent and meaning. This Inspector shall file with the Inspector of Buildings weekly reports of the progress of the work under his supervision as required by said Inspector of Buildings. The building owner shall employ this Inspector for such time as is necessary to supervise the work on the building involving its safe construction as determined by the Inspector of Buildings.

4. Right to Enter Building.

The Inspector of Buildings and his assistant so far as may be necessary for the performances of their duties, shall have the right, upon showing their badge of office, to enter any new or occupied building under construction, repair, alteration, or being removed, or any building alleged to be unsafe or a menace to life and limb.

B. REQUIREMENTS FOR OBTAINING PERMITS.

1. Applications for Permits.

Applications for permits shall be made in writing by the owner and submitted in person, or be signed by the owner and witnessed by his builder, architect, or authorized agent, or signed with power of attorney for owner, or by proper officer or member of a corporation, company or firm, and shall state clearly and fully the work contemplated to be done. Said applications shall be made upon forms or blanks to be issued for the purpose by the Inspector of Buildings.

It shall be unlawful to proceed with any work of whatever nature for which permits are required under these regulations, until such permit has been duly secured.

2. Plumbing Certificate.

Permits for the erection, enlargement or alteration of buildings, will not be issued until the Washington Suburban Sanitary Commissioners shall have certified in writing that the plans of the proposed building provide for compliance with the regulations relating to plumbing, drainage, and water supply; except that where said Commission does not exercise jurisdiction, said plans shall comply with the plumbing regulations hereafter set forth.

3. Permits Required.

Permits shall be obtained in advance from the Inspector of Buildings for the erection, alteration, repair, and removal of all buildings and structures and their appurtenances which may affect safety of life or limb or neighboring property or subject them to undue risks through structural defects or dangers of fire and explosion.

Permits are also required for:

Advertising devices attached to buildings.
 Awnings.
 Bake Ovens.
 Blasting.
 Cellars.
 Engines.
 Excavation pertaining to buildings.
 Fences, but not for the repair or reconstruction of a fence already in place.
 Furnaces for manufacturing purposes.
 Gasoline Tanks.
 Grandstands.
 Machinery.
 Motor of one-half H. P. and over.
 Observation Stands.
 Occupation of public space with building materials.
 Oil Tanks.
 Signs projecting over public space, billboards.
 Steam Boilers.
 Storage Tanks.
 Swimming Pools.
 Temporary construction in public halls.
 Temporary Sidewalk Coverings.
 Steel Radio Tower

Any appliances which may cause fire or explosion, disturbing noise or vibration.

Any establishment which without restraint or regulation might interfere with the health, safety and comfort of the community or result in a public nuisance or as further enumerated and controlled now or hereafter by the building or zoning regulations.

A permit shall not be issued to increase the height of a building unless the owner of said building shall furnish the Inspector of Buildings proof of satisfactory condition and adequate thickness of the walls thereof.

4. Permits shall not be required for minor interior alterations where there is no interference with the other construction of the building; nor shall Permits be required for alterations in buildings which do not involve any change in their structural parts, or in their stairways, elevators, fire-escapes, or other means of communication, or egress, or light or ventilation. The facts shall be determined in each case by the Inspector of Buildings.

5. Permits will not be issued for buildings in line of proposed streets when an appropriation has been made for such street, or condemnation proceedings have been authorized or begun, and permits will be refused for buildings or any other property where condemnation proceedings have been authorized or appropriation made for the purchase of the property under consideration.

6. Duration of Permits.

Permits shall be valid and in force for a period not exceeding six months, except that buildings started within this time and continuously under construction for more than six months may proceed to completion within a reasonable time under authority of the original permit.

7. Tanks.

Applications for permits to install or repair storage tanks for the supply of sprinkler systems must be accompanied in each case by drawings showing the design, location and construction of the tank and its supports. All tanks shall be installed in accordance with the approved drawings.

The fees for large illuminated signs on the roofs of buildings shall be \$10.00 except where such signs are in the nature of illuminated billboards, in which case the following billboard fees shall be charged:

All billboards shall be charged for at the rate of \$10.00 per square foot of surface, except that signs and boards advertising the property on which said signs and boards are placed, to be for sale or rent shall not be included.

8. Applications, Prints, Plats, Certificates.

There shall accompany each such application prints sufficient to enable the Inspector of Buildings to obtain full and complete information as to the extent and character of the work to be done. Said plans shall be in the case of veneered and faced masonry walls, show details of the bonding and masonry ties and shall specify the materials to be used. If the matter mentioned in any application for a permit or in the plans accompanying and illustrating the same indicate to the Inspector of Buildings that the work to be done is not in all respects in accordance with the provisions of the Building and Zoning Regulations, he shall refuse to issue a permit until such applications and plans have been made to conform. When such application and plans conform to these regulations, the Inspectors of Buildings shall issue a permit, file the application, and supply to all plans an official stamp stating that the drawings comply with the terms of these regulations.

In all cases where permits are issued by the Inspector of Buildings, contingent upon the written consent of property owners, or residents, the document containing such written consent shall be made a permanent record of the office of the Inspector of Buildings.

All revisions on plans submitted shall be made by the owner or his agent or representatives.

One plan, in each set submitted for permit, shall bear the following statement, signed by the Architect, Engineer and Elevator Designer, "This proposed building is designed in accordance with the Town of Takoma Park Building Code." The builder shall sign the following statement, which shall be made a permanent record of the office of the Inspector of Buildings before the return of his deposit, "This building has been constructed in accordance with the Town of Takoma Park Building Code."

Applications for permits which are not accompanied by clear and complete drawings will not be received for consideration. In the case of repairs and alterations to existing buildings those portions which it is intended to leave or incorporate in the new design shall be clearly indicated so as to facilitate identifying the old work.

Applications for permits to construct new buildings or to repair or alter existing buildings or structures of whatever nature must file in the office of the Inspector of Buildings the following:

Application properly filled out.

Two sets of prints showing architectural and structural floor plans, elevations and sections, and also drawings of construction of elevators and location of fire escapes.

One building plat.

One set of blueprints will be returned to the applicant when the permit is issued.

Plans of all buildings must show the proposed fire escapes, fire-resistive stairways and fire towers.

True copies of so much of said plans as may be required, in the opinion of the Inspector of Buildings, to illustrate the features of construction and equipment of the building referred to in these regulations shall be filed with the Inspector of Buildings and shall remain on file in his office until the completion or occupation of said building. Such drawings then may be returned by the Inspector of Buildings to the persons by whom they have been deposited with him upon the demand of said persons, except that plans of theaters, churches, halls, hotels, apartment houses, tenements, factories, shops, schools, colleges, hospitals, asylums, and all other buildings of a public or semi-public character or intended for the occupancy of more than twenty-five people at one time shall remain on file as permanent record, in the office of the Inspector of Buildings.

9. Official Plat.

Permits shall not be issued for buildings to be erected, enlarged, moved, or repaired until the land has been subdivided and recorded so that such building or premises will be located on a separate and distinct lot or recorded parcel of ground, and a plat of said subdivision as aforesaid has been filed in the office of the Inspector of Buildings. The owner or applicant shall show upon such plat, drawn to the same scale as the last plat or survey, all buildings or additions located and to be located thereon, and the buildings and additions must be located and erected as shown on said plat or survey.

10. Withdrawal of Consents.

Consents signatures of property owners for the establishment of any business requiring consents or the installation of motors or machinery as required by Building Regulations may be withdrawn at any time prior to issuance of permit.

11. Alteration of Drawings.

It shall be unlawful to deviate in any manner from, or to erase, or modify any lines or figures contained upon drawings after being stamped by the Inspector of Buildings or filed with him for reference; provided, that if during the progress of the execution of such work it is desired to deviate in any manner affecting the construction or other essentials of the building from the terms of the application or drawing, notice of such intention to alter or deviate shall be given in writing to the Inspector of Buildings, and his written assent shall be obtained before such alteration or deviation may be made. It shall be unlawful to fail or refuse to keep one full set of approved plans, officially stamped in the office of the Inspector of Buildings, on the building under erection, alteration or repair at all times.

12. Revocation of Permit.

If work upon any building shall be conducted in violation of any of the provisions of these regulations, either as to occupation of sidewalks or streets, or the use, quality, or application of materials or workmanship, the Inspector of Buildings shall give notice of such violation to the contractor, or his foreman or representative on the work or building under construction, or he may notify mechanics on the building through one of the assistant inspectors. Such notice shall fix a time which is reasonable and sufficient in the opinion of the Inspector of Buildings to make good the defective work or material in accordance with these regulations, and if such

MOTORS.

1. Fees for installing electric motors of from 1-2-H. P. to and including 2-H. P. shall be \$1.00 for each motor; from 2-H. P. to 10-H. P. fees shall be \$2.00; over 10-H. P. fees shall be \$5.00.

ELEVATORS.

1. Fees for installation of each hand-power elevator shall be \$2.00; for each power-driven freight elevator, \$5.00; and for each passenger elevator, \$10.00. The inspection fee shall be \$1.25.

Fees for heating apparatus, bake ovens, and storage or sprinkler tanks in each building, for awnings or each building, for each projection on public signs on the roofs of buildings shall be \$10.00 and for billboards shall be \$1.00 for a square foot except signs on property advertising same for sale or rent.

Fees for certificates and transcripts of records on file in the office of the Inspector of Buildings shall be \$1.00 for each certificate or transcript.

Fees for inspection of hotels, public halls, moving-picture shows, theaters and other places of amusement, which are required by ordinance to procure licenses annually for their operation from the Town of Takoma Park, and which require a condition precedent of the issuance of such a license a certificate from the Inspector of Buildings to the effect that such buildings are in compliance with the Building Regulations, shall be \$5.00 in each case; and for inspection of each building in which it is proposed to hold an entertainment for which special license is required by law, and which requires certificate from the Inspector of Buildings, as above mentioned the fee shall be \$1.00. The fee in each case shall be paid at the time application is made to the Inspector for license.

Fees for the inspection of fire escapes and fire towers shown on plans for the erection of new buildings, for the alteration, or remodeling of buildings, which are required by law to be equipped with fire escapes or fire towers, or both, during the erection, alteration, or remodeling of any such building, shall be \$5.00 in each case, to be paid at the time of issuance of permit for the erection, alteration or remodeling of any such building. For the inspection of fire escapes, fire towers, and other fire protective equipment required by law to be erected upon or installed in any building already erected, and for certificates of compliance with said law, the fee shall be \$10.00, payable upon issuance of said certificate.

Fees for all other permits required by law and regulations and not herein elsewhere set forth, shall be \$1.00.

1. Deposits, Change of Grade of Public Parking.

When any change in grade of a public parking is to be made in connection with building operations, the Building Inspector is authorized to require, in addition to such deposit as may ordinarily be required in connection with an application for a building permit, the deposit of such a sum as may be deemed necessary by the Park Planning Commission and approved by the official in charge of the Park Planning Commission. No deposit or deposits made in connection with an application for a building permit will be refunded until such action is approved by the Park Planning Commission. Permits to change the grade of a public parking, except in connection with building operations, will be issued only after such deposit as may be required by the Park Planning Commission, and approved by the officer in charge of the Park Planning Commission, has been made.

2. Moving Buildings.

For the moving of a building a deposit of two hundred dollars or less as determined by the Inspector of Buildings shall be made by the owner, to indemnify public and private property for damage arising from such removal. The amount so deposited shall be returned to the depositor as soon as the Inspector of Buildings ascertains that no damage has been sustained; but, if, any damage has been sustained, it shall be made good out of the deposit to the extent determined by the Inspector of Buildings, and the balance shall be returned to the owner.

3. Refund of Deposits.

Upon completion of the work for which the permit was taken out, said deposit, or any unexpended balance thereof, shall be returned to the depositor.

Article II. Fire Prevention and Protection Regulations.

PART 1.—FIRE RESISTIVE CLASSIFICATION OF BUILDINGS.

When a building has a mixed occupancy calling for conflicting fire-resistive classifications, the entire building shall take the more fire-resistive classification.

A. BUILDINGS REQUIRING MASONRY WALLS AND COMPLETELY FIRE-RESISTIVE CONSTRUCTION.

1. The following buildings shall be completely fire-resistive:

- a. Dwellings, flats, apartment houses, tenements, lodging or boarding houses, hospitals, dormitories, and buildings for any similar purpose, having more than four stories, or more than 55 feet in height.
- b. All buildings, excepting churches, more than 60 feet in height.
- c. Tower, spire, or domes, more than 60 feet in height.
- d. Theater buildings.

A. 2. Completely fire-resistive buildings constructed after these regulations are approved and in force and effect, shall comply with the following conditions:

- a. Having a seating capacity exceeding 1,500.
 - b. Having a seating capacity exceeding 1,000, and having highest portion of auditorium floor more than 4 feet above curb opposite center of main entrance.
 - c. Having a seating capacity exceeding 300, and having highest portion of auditorium floor more than 12 feet above curb opposite center of main entrance.
 - d. Having several places of assemblage having an aggregate seating capacity exceeding 1,200.
3. Schools and colleges which have more than two stories, shall be completely fire-resistive.
4. Buildings hereafter erected and used or designed to be used either wholly or in part as garages, or any existing buildings which are to be converted either wholly or in part for such use, shall be completely fire-resistive, except when such buildings or portion thereof are used for the storage or use of electrically driven vehicles which do not carry any inflammable liquid. Garages shall not be located in the lower stories of schools, hospitals, asylums, institutions for the infirm and places of assemblage. When garages are located in the lower stories of other buildings, no interior open-

work or material is not put in conformity with the regulations within the time mentioned in the said notice then the Inspector of Buildings shall revoke the permit for the building operations. It shall be unlawful, after the revocation of such permit, to proceed with such building operations, unless the permit shall have been reissued by the Inspector of Buildings. Before a permit revoked for the cause or causes before mentioned, can be lawfully reissued, the entire building and building site shall be put into condition corresponding with the terms of these regulations, and any work or materials applied to the building in violation of the terms of these regulations shall be removed. Additional cost incurred by the office of the Inspector of Buildings in connection with the revocation of the permit as aforesaid and its reissuance shall be determined by the Inspector of Buildings and paid before the permit is reissued.

A. PERMITS.

All electrical work, electrical wiring, etc., must be installed according to the rules and regulations of the National Board of Fire Underwriters.

The application for permit for alteration and repairs shall state the contract or estimated cost of such alterations and repairs, not including cost of decorations, interior furniture or movable equipment. The Inspector of Buildings may require information such as exhibit of bid or contract to determine said cost. The final determination of cost shall rest with the Building Inspector.

B. PERMIT FEES.

The Mayor and Council hereby prescribe the following schedule of fees for permits, certificates, etc., issued by the Inspector of Buildings.

a. For each unit of a private garage or other out-buildings cost not to exceed \$1,000.00—\$1.00.

b. For alterations not to exceed \$1,000.00—\$2.00—and \$1.00 for each additional \$1,000.00 or fraction thereof in excess of \$1,000.00.

c. For a building or structure of any kind costing in excess of \$1,000.00 not exceeding \$5,000.00—\$5.00.

d. (a) For building or structures of any kind exceeding \$5,000.00—\$5.00 and \$1.00 for each \$1,000.00 or fraction thereof in addition thereto.

(b) For a permit for each year for use of gasoline or other explosive or inflammable compound for lighting or heating—\$2.00.

(c) A cash deposit of \$10.00 shall be required for each permit for installing plumbing or for building construction or alterations to cover possible damage to public property, streets or walks or removal of debris.

Such deposit, or any unexpended balance thereof, will be returned upon proper certificate, in writing, of the Building Inspector. Deposits in excess of \$10.00 may be required when in the judgment of the Building Inspector the interests of the Town of Takoma Park so require. The Building Inspector shall have authority to waive the \$10.00 deposit when in his judgment there is no possibility of damage to streets or other property.

MINOR ALTERATIONS.

1. Fees will not be required for minor alterations previously described as not requiring permits.
2. The fee for any permit will not be less than one dollar.

ings into the buildings will be permitted, and such garages shall be separated from the remainder of the building by unpierced 8 inch brick or concrete walls, and unpierced fire-resistive floor construction. No heating, lighting or power plant shall be located in or have any communication openings with the portion occupied by automobiles when the garage floor is below grade at the entrance. Generators, transfers or convertors within any garage shall be located in completely fire-resistive compartments. Boiler and fuel rooms in connection with garages shall be enclosed with 8-inch masonry walls, and vestibule to boiler room have two approved automatic fire doors and the floor of the vestibule shall be 8 inches above the floor of the garage. The requirements of this paragraph 7 shall not apply to private garages, as defined in Section 2, part 12.

5. Buildings for stabling animals above the ground floor shall not hereafter be erected, altered, reconstructed or repaired, when such repair requires an expenditure equal to one-third of the present value of the buildings as determined by the Inspector of Buildings, unless they be made completely fire-resistive. Carriage houses separated from stables by masonry walls from foundation to one foot above the roof and having no direct communication with such stables, shall not be subject to this requirement.

B. The above clause shall apply only when a barn or stable is to be constructed in unsubdivided property containing not less than 5 acres, and in no case shall the barn or stable be within a radius of 300 feet of the line of the adjacent divided property.

6. Street railway car barns, electric substations and power houses shall be completely fire-resistive.

C. Any building constructed prior to the coming into force of these rules and regulations, shall at the descretion of the Building Inspector, be made to comply with the foregoing paragraphs i.e., provided said building or buildings is regarded as dangerous or a menace to life and limb.

B. BUILDINGS REQUIRING MASONRY WALLS AND PART FIRE-RESISTIVE CONSTRUCTION, AND IN WHICH THE REMAINDER OF THE CONSTRUCTION MAY BE NON-FIRE-RESISTIVE.

In any building three or more stories in height, or over thirty feet in heigh, constructed or used or intended to be used as a tenement house, apartment house, flat, hotel, hospital, seminary, academy, school, college, institute, dormitory, asylum, sanitarium, hall, or place of amusement, or office building or store, each elevator shaft and stairway extending to the basement shall terminate in a fireproof compartment or enclosure separating the elevator shaft and stairs from other parts of the basement, and no opening shall be made or maintained in such compartment or enclosure unless the same be provided with fireproof doors.

2. a. Every building hereafter erected with a hall or public assembly, or altered so as to have a hall with a seating capacity of more than three hundred persons when computed, as provided by the building regulations, and every church hereafter erected or building hereafter converted for use as a church, with such seating capacity, shall be of fireproof construction up to and including the floor of such hall or the auditorium of such church as the case may be.

b. Spires, towers, domes, minarets, pinnacles, pent houses over elevator shafts, ventilation shafts, chimneys, smoke-stacks and fire sprinkler tanks, exceeding limits of heights shall be fire-resistive construction on buildings having non-fire-resistive construction.

c. That additions to existing combustible or non-fireproof structures hereafter erected, altered, or raised to exceed the height limited

by paragraph 1 or such structures shall be of fireproof construction from the foundation up, and no part of any combustible or non-fireproof building shall be raised above such limits unless that part be fireproof from the foundations up.

d. Hotels, apartment houses and tenement houses hereafter erected, altered, or raised in any manner so as to be three stories in height or over and buildings hereafter converted to such uses shall be of fireproof construction up to and including the main floor, and there shall be no space on any floor of such structure of an area greater than two thousand five hundred square feet that is not completely enclosed by fireproof walls, and all doors through such walls shall be of non-combustible materials.

3. Hospitals, sanitariums, asylums, dormitories and institutions for the infirm and for any similar purpose shall be subject to the requirements of the above paragraph 2; and in this above paragraph 2 "and floor" shall include floors of attic spaces.

4. All elevator, dumb-waiter and light shafts shall be completely fire-resistive; the enclosing walls of partitions shall extend up through the attic or roof space and the roof, and the shafts shall have skylights with plain glass or pent-house windows with plain glass. Dumb-waiters or lifts extending through not more than two stories will not be required to be extended through the roof. A shaft other than a toilet ventilating shaft, adjacent to another shaft, other than a stairway, will not be required to extend through the roof if an opening at least equal to the area of the shaft is placed at its highest point so as to open into the second shaft; this opening may be left unglazed with plain glass, and top of this shaft shall be of not less than a 4-inch concrete slab. A horizontal effect of not more than six times the least dimension of the shaft will be permitted at any floor level. The effect shall not be constructed of unprotected sheet metal but shall be of completely fire-resistive construction.

5. All required stairs, stair landings and stair enclosures and all corridors leading to required stairs or fire-escapes shall be of completely fire-resistive construction in the following buildings: hotels and lodging houses having three or more stories; apartment houses having three or more stories and having more than one apartment on each floor; all schools, colleges and places of assemblage having a seating capacity exceeding 300, hospitals, sanitariums, asylums, dormitories, and institutions for the infirm, regardless of the number of stories; and all other buildings having more than four stories.

6. Except in buildings having steeply pitched roofs, all new stairways that are accessible from more than three stories shall be continued to the roof. In every such building at least one stairway shall be continued to the roofs, except that in buildings having steeply pitched roofs, the stairway may be covered with a skylight having glass, and the stairway need not be carried above the roof. Dwellings shall not be subject to the requirements of this paragraph.

7. Private garages in dwellings shall be in completely fire-resistive compartments, except that the exterior doors may be of wood. The interior door shall be an approved self-closing fire door, the sill of which shall be 8 inches above the floor of the garage.

8. Walls enclosing boiler and fuel rooms and that portion of the floor construction immediately over these rooms, in stores, hospitals, apartment houses, dormitories, hotels, tenement houses, sanitariums, asylums, institutions for the infirm and any similar purpose, shall be completely fire-resistive.

9. The roofs of vaults in public space shall be completely fire-resistive.

C. BUILDINGS REQUIRING MASONRY WALLS AND IN WHICH NON-RESISTIVE CONSTRUCTION IS PERMISSIBLE.

1. All buildings, except those specifically mentioned under Part II shall have masonry walls, and may have non-fire-resistive construction.

2. In hotels, apartment houses, tenement houses, hospitals, sanitariums, asylums, dormitories, and institutions for the infirm and any similar purpose three stories in height or over having non-fire-resistive construction, there shall be no space in any story, including attic, of such structure of an area greater than 2,500 square feet that is not completely enclosed by fire-resistive partitions, and all doors through such partition shall be of non-combustible materials.

D. BUILDING IN WHICH WOODEN, VENEERED WOODEN, OR SHEET METAL WALLS ARE PERMISSIBLE, AND IN WHICH NON-FIRE-RESISTIVE CONSTRUCTION IS PERMISSIBLE.

1. a. No wooden or frame building hereafter erected, altered or converted for use as a human habitation shall exceed three stories or exceed 40 feet in height to the roof.

b. Frame walls shall not be erected less than 7 feet from side or rear lines, except that in sections and subdivisions where a greater minimum distance is required by codes in force and effect at the time these regulations are in force said greater minimum shall continue in effect, except that buildings with frame walls may be semi-detached when a space not less than 7 feet is preserved between the frame wall of the building and the next line. In such cases, party walls between semi-detached dwellings may be constructed of wooden studs covered on both sides with metal lath and plaster; and such party walls may be constructed when masonry exterior walls are substituted for the allowable frame walls. When thus constructed fire-stops shall extend the full depth of the joists and at least 4 inches above the level of each floor. Such party walls shall be supported below the main floor by masonry walls not less than 6 inches in thickness, and those walls may be hollow tile or hollow concrete blocks.

c. This paragraph to apply on any lot 25 feet wide or under and which was platted and recorded at the county court house at the time these rules and regulations are approved and in force and effect, and no frame wall shall be within 5 feet of the party line of said lot.

d. Wooden buildings may be erected or converted to the use of private garages, barns, and private stables, but they shall not be erected or placed within 30 feet of any church, school or dwelling unless the written consent thereto of the owner of such church, school or dwelling be first obtained and filed in the office of the Inspector of Buildings. But no frame building shall be permitted, nor shall frame building be remodelled for business purposes within the "D" Commercial and "E" Industrial zones unless said frame structures are protected by fire walls between them and adjoining property and between new additions and present frame structures, and ceilings under said old frame structures shall be protected by 2 inches or more of fireproof material.

2. a. One story buildings, with sheet metal walls or structural steel framing, may be erected, provided they are not used for the manufacture or storage of combustible materials, or for other than private garages. No wall of such building shall be within 5 feet of a party line.

d. A building constructed of frame or partly frame enclosing walls, if not deteriorated or damaged beyond one-half its present reproduction value, may be repaired; but not structurally altered for conversion into a business building, unless masonry walls are built. A flat roof, covered

with metal or other incombustible material, may be substituted for a gable or pitched-roof provided the amount of framework removed above the flat roof shall equal or exceed the amount of framework added to the side walls above the cornices or eaves. Any such building, however, which is deteriorated or damaged beyond one-half its present reproduction value, may not be repaired or rebuilt, but shall be taken down. The amount or extent of such deterioration or damage shall, upon examination of the building, be determined by the Inspector of Buildings.

PART 2. REQUIREMENTS FOR FIRE-RESISTIVE CONSTRUCTION.

A. INCOMBUSTIBLE MATERIALS REQUIRED.

1. Masonry walls shall be in accordance with the requirements of Section 3.

2. Where fire-resistive construction is required, floors and roofs shall be of incombustible materials with a minimum thickness of 2 inches, supported by masonry, concrete or protective structural steel or cast iron, all in accordance with the requirements of Section 3. The above minimum of 2 inches may be reduced to 1 $\frac{3}{8}$ inches for long span channel type of gypsum or other approved roof tile, when such tile roof is protected by a suspended plaster ceiling.

3. Where fire-resistive construction is required, woodwork or other combustible material shall not be used, except as in the following paragraph, and except for wooden floor sleepers, grounds, bucks and nailing blocks when entirely embedded in incombustible material, also subflooring and finished wooden flooring and, except where fire doors and windows are required, wooden doors and windows with their frames and trim. Removable wooden balconies not exceeding 100 square feet in area, and wooden wainscoting and false or ornamental ceilings, may be permitted by the Inspector of Buildings. Material for sound insulation or deadening shall be incombustible.

4. Wooden joists protected by a ceiling of two alternating layers of $\frac{3}{8}$ -inch plaster board, breaking joints and nailed with 1 $\frac{1}{2}$ -inch plaster board nails 6 inches apart, and two alternating coats of Portland Cement of gypsum plaster, having a total thickness of 2 inches, may be permitted by the Inspector of Buildings for the top story ceilings of fire-resistive corridors where wood roofs are permitted. When buildings are altered, the ceilings of private garages and the required fire protection of main floors, not exceeding 1,500 square feet in area, may be protected as above, if permitted by the Inspector of Buildings. No type of plaster or plaster board protection shall be permitted in the alteration of buildings for use as garages other than private garages.

B. PROTECTION OF STRUCTURAL STEEL, CAST IRON AND FORMED STEEL JOISTS.

1. Where fire-resistive construction is required, structural steel, cast iron, and formed steel joists shall be protected from fire, except for lintels not spandrel beams, having a clear span of less than 8 feet and except for special structures, such as chimneys, gas holders, transmission towers, tank supports, signs, power houses, etc., when permitted by the Inspector of Buildings.

2. Structural steel, steel pipes and cast iron exterior columns and columns in party walls shall be protected at all points with a minimum of 3 $\frac{3}{4}$ inches of stone, brick or architectural terra cotta and brick, or 3 $\frac{3}{4}$ inches of 1-2-4 Portland cement concrete. Structural steel, steel pipe and cast iron interior columns shall be protected at all points with a minimum of 3 $\frac{3}{4}$ inches of stone, brick, clay hollow building or cored gypsum blocks,

or 3 inches of 1-2-4 Portland cement concrete, or solid gypsum blocks. Such protection shall be continuous from bottom to top of columns. Gypsum blocks shall not be used in the lowest story. The extreme outer edges of lugs, brackets and similar supporting metal may project to within 1 inch of the outer surface of the protection. No voids between the metal and the protecting casing shall be permitted, and pipes and conduits shall be placed outside of the required protection. When concrete is used columns shall be wrapped with No. 10 gauge wires 6 inches apart or approved equal. Wires not smaller than No. 12 gauge shall be securely wrapped around each course of tile or block covering. Brick, block and tile shall be laid up in mortar not leaner than 1-1-4 cement-lime mortar, and gypsum block shall be laid up in 1-3 gypsum mortar.

3. Structural steel other than columns shall be protected at all points with a minimum of 2 inches of clay tile, gypsum, or 1-2-4 Portland cement beams in flat ceiling construction, where corners of beams are not exposed, this protection may be a minimum of 1½ inches thick. Concrete and gypsum protection on bottom flanges of beams shall be suitably anchored with No. 10 gauge wires 9 inches apart or approved equal.

4. Where there is a clear ceiling height of over 20 feet in theaters and other places of assemblage requiring fire-resistive construction, and over 15 feet in one-story garages, the structural steel, supporting roof only, may be protected by a suspended ceiling of 1 inch of Portland cement or gypsum plaster on metal lath of at least 3.4 pounds per square yard, leaving a clear air space of 2 inches between the structural steel and the runner channels or angles supporting the lath. The ceiling hangers, channels, angles and lath shall be protected against corrosion. The space between the ceiling and roof shall be provided with automatic fire doors, and this space shall be used for no other purpose than to carry piping and flues of not less than No. 16 U. S. gauge iron, such flues to have 2-inch flanges turned outside of the fire-protection material.

5. Steel angle and the roof purlins carrying clay or gypsum tile may be protected by not less than two coats of plaster.

6. Where fire-resistive construction is required, the top flanges of formed steel joists shall be protected by a minimum of 2 inches of concrete, on expanded metal lath, firmly secured to the joists and of such weight as will afford adequate reinforcement for the concrete slab, but such metal lath shall not be less than 3.4 pounds per square yard. Such concrete shall be 1-2-4 Portland cement concrete, or may be "nailing" concrete, provided it shall be of such quality as to have a minimum compression strength of 1,500 pounds per square inch at the age of 28 days. When nailing screeds or sleepers are used they shall not reduce the above minimum of 2 inches of concrete over the tops of the joists, where fire-resistive construction is required. The above minimum of 2 inches of concrete shall be increased the same as required for the concrete topping over metal center construction.

7. Where fire-resistive construction is required, the bottom flanges of formed steel joists shall have a minimum of 1½ inch protection, as required by paragraph 3 above; except that when used in office buildings, schools, hotels, apartment houses, dwellings, flats, tenements, lodging or boarding houses, hospitals and dormitories, where such buildings do not exceed 85 feet in height the ceiling protection may be 1 inch of Portland cement of gypsum plaster on metal lath of at least 3.4 pounds per square yard.

8. Where formed steel joists are used, the air spaces between the upper slab and the ceiling must in all cases be completely isolated from the open atmosphere.

C. INTERIOR ENCLOSURES, PARTITIONS AND STAIRS.

1. Where fire-resistive construction is required, the elevator, stairs, dumb-waiter, light, vent and all other vertical shaft enclosures or partitions in the stories below the main floor, shall have fire doors and windows and shall be constructed of not less than 8 inches of brick, clay hollow building tile, hollow concrete block or concrete tile, or concrete, or 6 inches of reinforced concrete. All reinforced partitions shall have not less than 2-10 of 1 per cent of reinforcement in each direction.

2. Where fire-resistive construction is required, the elevator, stairs, dumb-waiter, light, vent and all other vertical shaft enclosures or partitions in the stories above the main floor, except wire and pipe shafts of an area not exceeding 10 square feet, shall have fire doors and windows and shall be constructed of not less than 8 inches of brick, 6 inches of clay hollow building tile, cored gypsum block, hollow concrete block or concrete tile, 5 inches of solid gypsum block, or $3\frac{3}{4}$ inches of reinforced gypsum blocks or reinforced concrete. Where above required 6 inch clay hollow building tile, hollow concrete block or concrete tile are not plastered on both sides, they shall have a central web so as to give a protection of two air spaces. The walls of wire and pipe shafts of an area not exceeding 10 square feet shall have fire doors and shall be constructed of not less than $3\frac{3}{4}$ inches of brick, clay hollow building tile, hollow concrete block, concrete tile, concrete or cored gypsum blocks.

3. Where "fireproof walls" are required, such of these as are interior partitions are required for the subdivision of stories, such partitions shall conform to the above two paragraphs.

4. Where fire-resistive construction is required, the walls of the required egress corridors shall have fire doors and windows and shall be constructed of not less than $3\frac{3}{4}$ inches of brick, clay hollow building tile, hollow concrete block, concrete tile, concrete, or cored gypsum blocks. Gypsum blocks shall not be used in the lowest story.

5. Where fire-resistive construction is required all other partitions, that those mentioned in above paragraphs, shall have a sufficient thickness to insure rigidity, with a minimum thickness of 2 inches, and shall be of incombustible material, except for wooden plates, bucks, doors and windows or metal partitions with metal frames and sash and wired glass.

6. The above required enclosures or partitions shall have a maximum unsupported height of 15 feet when $3\frac{3}{4}$ inches thick, 18 feet when 5 inches thick, and 20 feet when 6 inches thick. The above allowable 2-inch partitions shall have a maximum unsupported height of 10 feet and shall be increased to 3 inches for a maximum of 20 feet.

7. Shaft walls, except wire and pipe shafts of an area not exceeding 10 square feet, shall not be stopped at ceilings, but shall extend up through roof construction, except that shafts for dumb-waiters or lifts extending through not more than two of the lower stories will not be required to be extended to the roof. Such two-story shafts shall, in all cases, have fire-resistive enclosures, and shall be closed at the top with a minimum of 4 inches of reinforced concrete.

8. Vent shafts for mechanically ventilated toilets may be connected by sheet metal ducts to a ventilating fan and shall not be subject to the requirements for vertical shafts in the preceding paragraph. Such shaft walls shall conform to paragraph 4 above.

9. A stairway and elevator shall not be permitted in the same enclosure, and not more than three elevators shall be in the same enclosure.

10. Where fire-resistive construction is required, stairs, platforms and landings shall be of incombustible materials. When treads or landings are of slate, marble, stone or composition bearing on a steel or cast iron frame, they shall be supported for their entire width and length by $\frac{1}{8}$ -inch steel plates.

D. FIRE-RESISTIVE DOORS, WINDOWS AND SHUTTERS.

1. Fire doors shall be of the self-closing or automatic types. A self-closing fire door is one which is normally kept in a closed position by some mechanical device. An automatic fire door is one which is so arranged to close automatically when released by the action of heat. Fire doors shall be of the swinging or horizontal sliding type, when same are in required exits.

2. Where Underwriters' Laboratories specification and inspection are called for below, the Inspector of Buildings shall approve the use of doors, windows and shutters of like grade which will rank with those called for.

3. Fire doors in party walls shall bear the Underwriters' Laboratories Class A. Label and shall have labeled hardware.

4. All required automatic fire doors and all required fire doors in stories below the main floor shall be automatic, shall bear the Underwriters' Laboratories Class B label and shall have labeled hardware.

5. Fire doors not otherwise provided for in this section shall be self-closing, shall bear the Underwriters' Laboratories Class C label, shall have labeled hardware, and shall be set in masonry walls or in steel bucks.

6. Doors in fire-resistive public halls and corridors shall be Kalamein doors, or other metal doors equally fire-resistive.

7. Where Class A or Class B doors are required above, fire windows shall bear the Underwriters' Laboratories label for Class E openings, all other required fire windows shall bear the Underwriters' label for Class F openings.

8. Class C doors and elevator doors, if glazed, and all fire windows shall be glazed with not less than $\frac{1}{8}$ -inch wired glass. For Class C doors, elevator doors, and Class E windows, lights shall be limited to 720 square inches, and for Class F windows the lights shall be limited to 54 inches in either direction.

9. Where openings are in walls of completely fire-resistive buildings and where such walls are within 30 feet of combustible buildings, such openings shall be "protected from fire by automatic fire shutters or wire glass in fire-proof sash and frames." For such openings Underwriters' Laboratories Class C doors and Underwriters' Laboratories Class E windows shall be used or Underwriters' Laboratories Class D fire shutters may be used.

E. ROOFS.

1. Where fire resistive roof construction is required, roof coverings shall be of incombustible materials, such as slate, tile or concrete, sheet metal asbestos shingles, or built up roofing felt with gravel or slag surface, or built-up asbestos roofing, or other roofing of like grade which would rank as Class A or B under the test specifications of the Underwriters' Laboratories.

2. Roof mouldings, cornices, finials, crestings and dormer window fronts shall be of incombustible materials, where fire-resistive roof construction is required.

3. Roofs of buildings more than 15 feet in height, which are not required to have stairways leading thereto, shall have scuttles which

shall be easily accessible, securely hinged, and hooked or bolted to the roof. The roof opening shall be at least 2 feet by 3 feet clear. All wooden scuttles shall be covered on the top and edges with sheet metal. Where dormer windows give direct access to roofs, and for steeply pitched roofs, scuttles may be omitted. Steeply pitched roofs shall have approved snow breaks or guards, unless projecting cornices or gutters provide proper protection.

F. SKYLIGHTS.

1. Where elevator, dumb-waiter, stair, light, vent and other shafts are required to extend up through roofs, such shafts shall have a skylight covering at least three-fourths of the area of the shaft, but such skylight shall not be required to exceed 100 square feet in area. Such skylights shall have ventilators or louvres with an area of one-seventh of the area of the skylights but such ventilators or louvres shall not be required to exceed 14 square feet in area. Instead of skylights, metal windows of equivalent area may be placed above the roof in the sides of the shaft which are furthest removed from the party lines, or a combination of windows and skylights, of the required total area, may be used.

2. The above required skylights or windows shall not be glazed with wired glass, but wire screens shall be placed below such skylights. Wire screens shall be placed above and below all plain glass in skylights over corridors, passageways and places of assemblage, or screens may be omitted if wired glass, at least $\frac{1}{8}$ -inch thick, is used. Screens shall be of No. 12 gauge wire, with mesh not exceeding 1 inch, shall project 6 inches beyond the skylight, and shall have substantial metal supports not closer than 6 inches to the glass.

3. The widths of skylight glass shall not exceed the following: $\frac{1}{8}$ -inch glass 16 inches wide, 3-16 inch glass 18 inches wide, $\frac{1}{4}$ -inch glass 20 inches wide, $\frac{3}{8}$ -inch glass 24 inches wide.

4. All skylights shall have metal frames and sash, and the frames and parts thereof, including bars, slats, and louvre frames, shall be riveted, bolted or spot welded in addition to soldering. Frames shall be properly anchored to curbs.

5. Skylight metal shall not be less than 26 U. S. Gauge galvanized iron of 16 oz. rolled copper. Caps shall be provided to hold glass in place and eaves shall be of ample size to receive bars, and be provided with condensation gutters. Skylight bars shall be of a section or shape that provide a condensation gutter, and seat for glass independent of the member forming condensation gutter, or other sections or shapes may be approved by the Inspector of Buildings.

6. Depths of bars shall not be less than the following: 2 inches for bars less than 4 feet in length and spaced not over 20 inches apart, $2\frac{1}{4}$ inches for bars less than 4 feet in length and spaced not over 24 inches apart, $2\frac{1}{4}$ inches for bars less than 6 feet in length and spaced not over 20 inches apart, $2\frac{1}{2}$ inches for bars less than 6 feet in length and spaced not over 24 inches apart, $2\frac{1}{2}$ inches for bars less than 8 feet in length and spaced not over 20 inches apart, $2\frac{3}{4}$ inches for bars less than 8 feet in length and spaced not over 24 inches apart, $2\frac{3}{4}$ inches for bars less than 10 feet in length and spaced not over 20 inches apart, 3 inches for bars less than 4 feet in length and spaced not over 24 inches apart.

7. Bars 8 feet and over and less than 10 feet in length shall be reinforced with $\frac{1}{8}$ -inch steel cores, bars 10 feet long by 3-16 inch steel cores; and all bars over 10 feet in length shall be supported on intermediate purlins; or by sufficiently reinforced to carry the required roof load. Skylight work shall be designed to amply support the required roof load.

8. See Plumbing Regulations for ventilating skylights for toilet rooms.

PART 3. REQUIREMENTS FOR NON-FIRE-RESISTIVE CONSTRUCTION

A. COMBUSTIBLE MATERIAL ALLOWED.

1. Where non-fire-resistive construction is permitted, timber construction may be used, provided such construction shall have the required protection around chimneys and shall have the required stops against spread of fire.

2. Wood lintels shall not be used in masonry walls except for centers for arches.

B. PROTECTION OF STRUCTURAL STEEL, CAST IRON AND FORMED STEEL JOISTS.

1. Where non-fire-resistive construction is permitted, structural steel and cast iron supporting masonry, except for lintels having a clear span of less than 8 feet, shall be protected from fire as required for fire-resistive construction.

2. Where non-fire-resistive construction is permitted, the protection for the top flanges of formed steel joists may be omitted, but the bottom flanges of such joists shall be protected by a ceiling of not less than two coats of Portland cement or gypsum plaster on metal lath, the plaster to be not less than $\frac{5}{8}$ -inch thick. Where formed steel joists are used, the air space between the upper slab or flooring and the ceiling, must in all cases be completely isolated from the open atmosphere.

C. WOODEN, VENEERED AND SHEET METAL WALLS.

(See Section 3 for requirements for masonry when roof surfaces, such as mansards, are steeper than 4 inches horizontal to 12 inches vertical, as such wooden mansard construction will not be allowed where masonry walls are required.)

1. Wood studding shall not be less than 2 by 4 inches and spaced not to exceed 16 inches on centers. Where exterior walls or parts thereof more than one story high are sheathed the boards shall be not less than three-fourths inch actual thickness. Sheathing boards shall be laid tight and properly nailed to each stud with not less than two eightpenny nails. Where the sheathing is omitted or is not laid diagonally, all corners shall be diagonally braced and such other measures taken to secure rigidity as may be necessary. Ledger or ribbon boards used to support joists shall be not less than two tenpenny nails to each stud.

2. Masonry veneer of a maximum height of 25 feet and not less than $3\frac{3}{4}$ inches thick, may be applied to frame construction, but such walls shall not be considered as masonry walls. When gable construction is used an additional 5 feet shall be permitted to the peak of the gables. Such veneering shall rest upon the masonry foundations of the building, and shall be securely attached to the frame structure at intervals of not more than 24 inches vertically and 16 inches horizontally. Sheathing shall be securely attached to the frame work back of the masonry veneering. Masonry veneer shall not extend below the main floor.

3. When stucco is used on frame construction, if sheathing is omitted, the stucco shall be back plastered with sufficient thickness to extend $\frac{1}{4}$ inch between studs. Where sheathing is used it shall be of boards not less than $\frac{3}{4}$ inches securely nailed to studding. Metal lath for stucco

shall be expanded metal lath weighing not less than 3.4 pounds per square yard, or woven or welded wire lath not lighter than No. 19 gauge. Flashing shall be used to prevent penetration of moisture behind stucco, and stucco shall be kept at least 4 inches above the adjacent ground surface.

4. Party walls between semi-detached dwellings, where masonry walls are not required, may be constructed of wooden studs covered on both sides with metal lath and plaster. When thus constructed firestops shall extend the full depth of the joists and at least 4 inches above the level of each floor. Such walls shall be supported below the main floor by a masonry wall not less than 8 inches in thickness, and these walls may be of hollow tile or hollow concrete blocks.

5. Where sheet metal walls are permitted sheet metal of not less than 24 U. S. Gauge shall be used, except that sheet metal not less than 26 U. S. Gauge may be used for siding of private garages. Sheet metal shall be galvanized or otherwise protected than with paint. When allowed on wood supporting frame, such frame shall have 2 by 4 inch studs spaced not to exceed 24 inches on center.

D. INTERIOR ENCLOSURES, PARTITIONS AND STAIRS.

1. Where non-fire-resistive construction is permitted throughout, the walls of elevator and dumb-waiter shafts shall have a minimum thickness of $3\frac{3}{4}$ inches of brick, clay hollow building tile, hollow concrete block, concrete tile, concrete or cored gypsum blocks. Such shaft walls shall be supported by steel or reinforced concrete framing at each floor. Other elevator and dumb-waiter shaft requirements shall be as required for fire-resistive construction.

2. Where non-fire-resistive construction is permitted throughout in buildings having more than four stories, the walls of the stair wells shall conform to the requirements of the above paragraph.

3. Where non-fire-resistive construction is permitted throughout in buildings not over four stories in height, stairs may be built of wood on wood carriages, but in all such cases the soffit of such stairs shall be plastered with not less than $\frac{3}{4}$ -inch gypsum or Portland cement plaster on metal lath. Fire-stopping of stairs of non-fire-resistive construction. Stairs shall be completely enclosed in walls or partitions made of wooden studs not less than 2 inches by 4 inches with metal lath and $\frac{3}{4}$ inch of gypsum or Portland cement plaster on both sides. Such partitions shall be fire-stopped at floors and shall have fire-stopping blocks set at mid-story height. Partitions of wired glass in metal framework may be substituted for wood stud partitions plastered on metal lath and fire-stopped.

4. Shafts other than those mentioned in the preceding paragraphs shall be protected by Portland cement plaster or gypsum on metal lath. Shafts shall extend to roof and be protected in attic space. They shall have a skylight with plain glass, or pent house with windows glazed with plain glass.

5. Incombustible lath shall be used on all interior partitions and on ceiling, where non-fire-resistive construction is permitted in hotels, hospitals, sanitariums, asylums, dormitories, apartment houses, institutions for the infirm and for any buildings for similar purposes. Wood lath shall not be used in such buildings.

6. No all-wood partitions shall be permitted in any hotel, lodging house, hospital, sanitarium, asylum, apartment house, institution for the infirm, or for any building for similar purposes.

E. FIRE-STOPPING.

1. Fire-stopping shall be arranged to cut off all concealed draft openings and form an effectual horizontal barrier between stores and roof spaces.

2. For all walls furred with wood the masonry between the ends of wooden joists shall project the thickness of the furring beyond the inner face of the wall for the full depth of the joists, or a double course of bricks, or other masonry above and below the joists shall project beyond the face of the wall the full thickness of the furring. Where floor joists are parallel to a wall furred with wood there shall be a space of not less than $2\frac{1}{2}$ inches between each wall and the nearest joist. This space shall be filled solidly with brick-work or concrete for the full depth of the floor joists or be equivalently fire-stopped.

3. Where wood external walls are not directly over the supporting walls the space between the inside face of the wall and the studding at the floor level shall be fire-stopped with incombustible materials. The spaces between beams directly over the studded-off space shall be fire-stopped by covering the bottom of the beams with metal lath and plaster and then placing a 3-inch loose fill of incombustible material on the plaster between the beams, or 3-inch gypsum plaster partition blocks may be cut to fill the spaces between joists and be supported on cleats.

4. Where stud partitions rest directly over each other and cross wooden floor beams at any angle, and the studs run down between the floor beams and rest on top plate of the partition below, the spaces between the studding shall be filled in solid to at least 4 inches above each floor level with incombustible materials.

5. Cornices and walls behind eaves shall be either completely separated or fully fire-stopped between buildings.

6. The space between stair carriages shall be fire-stopped by a header beam at top and bottom. Where a stair run is not all in one room or where a closet is located beneath the stairs, the stair carriages shall have an intermediate fire-stop, so located as to cut off communication between portions of the stairs in different rooms, or between the closet and the room in which it is placed. Such stops shall be made of plank. Where a flight of stairs is so arranged as to be the only construction separating two stories at the place where they are located, the underside of the stairs shall be covered with metal lath or one-half inch plaster board and plastered to a total thickness of three-fourths inch.

7. Where a furnace warm-air pipe passes through a floor, the space between the pipe and floor construction shall be filled with incombustible material supported by sheet metal or metal lath. The space between a register box set in a floor and the casing protecting the floor construction shall be filled with incombustible materials. This shall include the space around that portion of the warm-air pipe attached to the register box down to the bottom of the joists, and a layer of sheet metal lath shall surround the pipe and be securely nailed to the underside of the joists to support the fire-stopping. When a register box is fire-stopped in this manner, the space between the box and the casing may be reduced to 2 inches; otherwise it shall be 4 inches.

8. Floor joists on opposite sides of party walls shall be staggered, so as to be separated by at least $3\frac{3}{4}$ inches of solid masonry joists shall not be permitted and joists hangers shall be used.

9. Ceilings of canopies of gasoline filling stations shall be sheet metal or plastered with two coats of Portland cement or gypsum mortar on metal lath, with a thickness of $\frac{3}{4}$ inch, and the roof moldings, cornices and crestings shall be of incombustible materials.

F. PROTECTION AROUND CHIMNEYS.

1. No wooden beams, joists, or rafters shall be placed within 2 inches of the face of chimneys. Wood joists shall not bear on a chimney wall unless placed within 4 inches of the back wall of any fireplace.

2. All spaces between chimneys and wooden joists or beams shall be filled with loose cinders, loose mortar refuse, gypsum block, or other incombustible material to form a fire-stop. The incombustible material shall be supported by strips of sheet metal or metal lath set into brickwork and nailed to the wooden beams, forming a buckled flexible joint, or by similar strips of metal nailed to the woodwork with the inner edge close to the chimney.

3. No wooden studding, furring, lathing, or plugging shall be placed against any chimney or in the joints thereof. Wooden construction shall either be set away from the chimney or the plastering shall be directly on the masonry or on metal lathing or on incombustible furring material. Wood furring strips placed around chimneys to support base or other trim shall be insulated from the masonry by asbestos board, at least $\frac{1}{8}$ -inch thick, and metal wall plugs or approved incombustible nailholding devices attached to the wall shall be used for nailing.

4. All fireplaces and chimney breasts shall have trimmer arches and hearths shall be at least 20 inches wide, measured from the face of the chimney breast. The arches shall be of brick, stone, or hollow tile, not less than $3\frac{3}{4}$ inches thick. A flat stone or a reinforced concrete slab may be used to carry the hearth instead of an arch if it be properly supported and a suitable fill be provided between it and the hearth. The length of trimmer arches and hearths shall be not less than 24 inches longer than the fireplace opening. Hearths shall be of brick, stone, tile, or concrete.

5. Chimneys shall not rest upon or be carried by wood floors, wood beams or brackets, nor hung from wooden rafters; but masonry shall be built from foundations up in frame buildings.

6. No change in the exterior dimension of chimneys shall be made within a distance of 12 inches above or below the rafters or roof joists.

7. Flue intake openings shall be at least 18 inches below wooden lath and plaster, or other combustible ceilings or open joists, unless the surface above the pipe is protected with incombustible materials. No woodwork will be placed within 6 inches of a thimble.

8. Tops of furnaces shall not be less than one foot below wooden joists, and such joists shall be protected by Portland cement plaster or gypsum on metal lath, or No. 24 U. S. gauge sheet iron hung 2 inches below joists and extending 2 feet beyond furnaces on all sides.

9. No metal smokepipe shall pass through any wooden floor, partition, or roof, nor through any closet, attic or similarly concealed space. Metal pipes shall not be within 2 feet of any unprotected woodwork, or within 1 foot if woodwork is protected as required in preceding paragraph.

10. No wooden mantel or other woodwork shall be placed within 8 inches of the side or top of any open fireplace.

G. ROOFS.

1. In buildnigs where non-fire-resistive roof construction is permitted, roofs, scuttles and skylights shall be as required for fire-resistive roof construction; except that asphalt-rag-felt slats surfaced roof coverings which would rank as Class C under the test specifications of the Underwriters' Laboratories may be used; and except that all types of Class C roofings and wooden shingles may be used in dwellings and private garages, where such buildings are not less than 15 feet removed from the party lines.

2. All zones except "D" First Commercial, roofs of combustible materials which shall have become impaired not more than 1-3 of their present replacement value may be repaired by the owners with combustible material. Where roofs have depreciated in the opinion of the Inspector of Buildings more than 1-3 of their value the roof shall be covered with incombustible materials as in preceding paragraph.

3. Corrugated sheet metal not less than 22 U. S. gauge, reinforced roofing tile not less than 1 inch in thickness, and other approved roofing tile may be used when same are properly supported by purlins; except that corrugated sheet metal not less than 24 U. S. gauge may be used for roofs for private garages.

5. Frame pent houses or bulkheads for tanks, elevator machinery, or other purposes, upon roofs which are of non-fire-resistive construction, shall be completely covered with metal, stucco on metal lath or other approved incombustible material. Such pent houses or bulkhead windows, doors and trim shall be metal or metal covered. Plain glass shall be used for shaft pent houses, wire glass for other roof enclosures.

6. Roof moldings, cornices, finials, crestings and dormer window fronts shall be of incombustible materials on all buildings where masonry walls are required.

Article III. Structural Engineering Requirements

For special structures, such as tanks, bins, hydraulic structures, gas holders, chimneys, bridges, retaining walls, etc., the structural engineering regulations of this Code may be modified, subject to the approval of the Inspector of Buildings, to conform to recognized practice for the design of such structures.

PART 1. MINIMUM LOAD REQUIREMENTS.

Buildings shall be of sufficient strength in all parts to safely support the dead, wind, snow and live loads; and floors of buildings now constructed shall not be loaded in excess of their safe carrying capacity.

A. DEAD LOADS.

1. The dead load of a building shall include the weight of all permanent construction entering into same, such as the walls, floor and roof construction partitions, fixed seats, etc.

2. For floors in office and other buildings, subject to moving of partitions, the partition load may be computed as uniformly distributed, except where partitions are pallel to joists, in construction of a character not capable of transferring loads to adjacent joists.

3. Machinery, motors, storage batteries, fans, piping, ducts, etc., shall be provided for; and buildings shall be properly braced for vibrating or moving machinery.

B. WIND LOADS.

1. The wind pressure upon all verticle surfaces of buildings shall be taken at 20 pounds per square foot for those portions less than 40 feet above grade, and 30 pounds per squtre foot for those portions more than 40 feet above grade.

2. The normal wind pressure on roofs in pounds per square foot shall be taken as 2A-3 with a maximum of 30 pounds per square foot for roofs inclined steeper than 45 degrees (A—the degrees of the angle between the roof surface and the horizontal).

3. For combined stresses due to wind and other loads, the allowable working stresses may be increased 33 1-3 per cent, provided the section thus found is not less than that required by the dead, live and snow loads alone.

C. SNOW LOADS.

Roofs shall be designed for a snow load of 30 pounds per square foot of horizontal prjection, but not less than 10 pounds per square foot of roof surface. Roofs paved with promenade tile shall be designed for a live load of 40 pounds per square foot.

D. LIVE LOADS.

1. Floor construction shall be designed to support not less than the following minimum live loads, uniformly distributed, in pounds per square foot of horizontal area, for the proposed use of the floor:

a. 40 pounds for rooms of dwellings, flats, apartments, clubs, hotels, tenements, lodging or boarding houses, hospitals, sanitariums, asylums, institutions for the infirm, dormitories, boarding schools, and buildings for any similar purpose (except rooms for public use as specified in paragraph b below), school and college class rooms with

b. 70 pounds for floors for office purposes (except main floors as specified in paragraph c below); lobbies, offices, dining rooms or other rooms for public use of hotels, clubs, apartment houses, hospitals and buildings for similar purposes; school and college rooms without fixed seats and school and college laboratories and corridors; churches, theaters, halls, fraternal meeting rooms and places of assemblage, with fixed seats; film exchanges; museums; art galleries; libraries (except book stacks at 30 pounds per cubic foot).

c. 100 pounds for halls, fraternal meeting halls,, dance halls banquet rooms, church lobbies, theater lobbies, roof gardens and places of assemblage, without fixed seats; theater gridirons and fly galleries; grandstands; main floors of buildings for office, banking, restaurant or rooms; bowling alleys; laundries, dry-cleaning establishments; undertaking establishments; stores and sales rooms; stables; automobile show standard 2-ton unloaded trucks (except that live loads for slabs and joists for these garages shall be 125 pounds per square foot).

d. 150 pounds for general storage, such as household and dry goods; printing plants; light manufacturing plants; theater storage rooms; bottling plants; telephone exchanges.

e. 200 pounds for storage such as groceries, cereals, flour, produce, drugs, paints, electrical supplies; theater stages.

f. 250 pounds for storage such as building materials, hardware, china, glassware, paper; for sidewalks and parking over vaults; for garages up to and including standard 6-ton unloaded trucks (except that live loads for slabs and joists for these garages shall be 350 pounds per square foot).

2. The minimum live loads for corridors, passageways and aisles, shall be the maximum specified for the rooms which they serve for egress. Provision shall be made for partial and eccentric loading. Concentrated loads, such as safes, shall be properly distributed on the floor construction.

3. Structural plans shall show the assumed live loads.

E. REDUCTION OF LIVE LOADS.

1. In the alteration of existing buildings, the Inspector of Buildings may allow a maximum reduction of 30 per cent of the specified minimum live loads, provided official live-load placards, as required by paragraph f below, are posted, showing this reduced load.

2. Except as allowed in preceding paragraphs, there shall be no reduction of live loads for the slabs, beams and girders in any floor or roof construction, nor for columns, piers and walls supporting a roof or supporting a single floor; nor for columns, piers and walls in buildings in which the minimum live load is more than 150 pounds or less per square foot, the columns, piers and walls shall be designed to carry the full live load of the roof, not less than 90 per cent of the live load of the top floor, 80 per cent for the floor below, and so on, decreasing the parts of live load carried by 10 per cent on each floor until 50 per cent is reached, after which no further reduction be made.

4. Foundations shall be designed for the column, pier and wall loads computed as indicated above; except that foundations on artificial fill or—on shall be designed to carry only 33 1-3 per cent of the total load when the minimum live load is less than 100 pounds, 50 per cent when the minimum live load is 100 pounds, 50 per cent when the minimum live load is over 150 pounds.

F. OFFICIAL LIVE LOAD PLACARDS.

1. The owner, agent or occupant of every building now existing or here constructed, used for storage or manufacture shall affix so as to conspicuously display in each story of such building an official embossed metal placard stating the safe superimposed load per square foot for that particular floor. If the strength for different parts of a story varies, there shall be such a placard each varying part of such story. When in the alteration of existing buildings the Inspector of Buildings allows a reduction of live load, as provided for in paragraph e above, similar metal placards shall be posted showing the reduced load.

2. Occupants of a building shall maintain such placards during their occupation of the premises, and the owners of buildings, or their agents, shall cause the same to be renewed when necessary.

3. Owners of buildings of these classes shall submit the figures for such placardss, which figures shall be verified and approved by the Inspector of Buildings, and any loading on the floors in excess of the weight allowed, or failure to display placards above referred to, shall, upon con-

viction, subject the offender to the penalties provided by law. See Act of 1927 above.

4. For garages having floors designed for passenger automobiles, the owner agent or occupant shall conspicuously display an official embossed metal placard prohibiting all loaded trucks and empty trucks heavier than standard 2-ton trucks. All garages, regardless of the designed live load shall have official placards prohibiting loaded trucks on floors not supported directly on the ground.

PART 2.—FOUNDATIONS, RETAINING WALLS AND UNDERPINNING.

A. ALLOWABLE LOADS FOR SPREAD FOUNDATIONS.

1. The loads shall not exceed the following:

a. On Rock:

Solid bed rock, 30 tons per square foot; soft rock, 10 tons per square foot; disintegrated rock, 5 tons per square foot.

b. On Natural Earth:

Firm clay; clay and gravel, 4 tons per square foot; clay, sand; sand and clay, 3 tons per square foot; soft clay, 1 to 2 tons per square foot.

c. On Artificial Fill, $\frac{1}{2}$ ton per square foot.

2. Where the site may be underlaid with organic matter, and for other doubtful foundations, the Inspector of Buildings may require borings or test holes and load tests, at the owner's expense; however, the test settlement shall not be taken as an indication of the probable building settlement unless the test is comparable in size with the proposed foundation.

3. Foundation plans shall show the assumed loads on the rock, natural earth, artificial fill or piles.

4. Before concrete footings are poured, the bearing value of the soil shall be approved by an Assistant Inspector of Buildings.

B. SPREAD FOUNDATION DESIGN.

1. Foundations shall be so designed that the loads will be uniformly distributed, and not in excess of the allowable loads. Combined footings shall be so designed that the center of gravity of the footings shall coincide with the center of gravity of the loads. For footings on artificial fill, reduced live loads shall be used as required. Precaution shall be taken that footings on artificial fill be protected from surface water by proper back fill and drainage.

2. The bottoms of footings shall be at least 2 feet 6 inches below the adjacent surface of the ground. Footings shall be at least 1 foot deep, and shall have a minimum projection of 6 inches for walls and 9 inches for piers, which minimum projection may be modified where required by the safe design of the building. For plain concrete footings, the rectangular projection shall not exceed $\frac{5}{8}$ of the depth of a wall's footing, or $\frac{1}{2}$ the depth of a rectangular pier or column footing.

3. Footings shall be of plain concrete, not weaker than 1 part Portland cement, $2\frac{1}{2}$ parts sand and 5 part gravel; of reinforced concrete, not weaker than 1 part Portland cement, 2 part sand and 4 parts gravel; or structural steel grillage encased in concrete, not weaker than 1 part Portland cement, 2 parts sand and 4 part gravel. The gravel shall not exceed $2\frac{1}{2}$ inches. All of the above proportions are by volume. The maximum slump for foundation concrete shall be $6\frac{1}{2}$ inches. Plain and reinforced concrete, and structural steel, shall be as specified. Steel grillage shall have

separators and bolts not over 5 feet on centers, and shall be filled solidly between webs and concrete. The covering for steel bars and steel grillage shall be not less than 3 inches of concrete.

4. The above requirements may be modified for wood or metal covered garage sheds, porches and other minor structures and for wharves.

C. PILE FOUNDATIONS.

1. The maximum safe loads for piles shall be determined by the following formula:

$$L = \frac{2WH}{S / 0.1} \text{---For gravity hammer.}$$

$$L = \frac{2WH}{S / 1.0} \text{---For gravity hammer.}$$

L...Safe load in pounds.

H...Fall or stroke of hammer in feet.

S...Average penetration in inches, under the last five blows, without damage to pile.

W...Weight of hammer or striking part in pounds; and when double acting steam hammer is used equals weight of striking part plus the downward steam pressure upon same.

2. The Inspector of Buildings may require boring and load tests of piles at the owner's expense. For pile foundations, reduced live loads shall be used.

3. The ground shall be excavated to at least one foot below the heads of the piles, and reinforced concrete caps shall be similar in design and specification to reinforced concrete footings. Groups of piles under column footings shall be arranged in plan as nearly circular as possible. Friction piles shall not be spaced closer than 2½ feet between centers and preferably not closer than 3 feet. Single rows of piles shall not be used under bearing walls.

4. Timber piles shall not be less than 6 inches at the point, and not less than 10 inches at the butt for piles not over 25 feet in length. Timber piles shall be sound, stripped of bark, and a line drawn from the body of the pile. Timber piles shall not have bends in more than one direction. Butts shall be protected with metal bands, cushions or other means, to prevent ground water level. The maximum load for a timber shall be 30,000 pounds.

5. Concrete for piles shall be not weaker than 1 part by volume of Portland cement, 2 part sand and 4 parts gravel not exceeding 1½ inches, with maximum slump of 6½ inches. The diameter of the point shall not be less than 8 inches and the average diameter shall not be less than 12 inches. The length shall not exceed 30 times the average diameter, except that if rock bearing the length shall not exceed 20 times the average diameter. Rock bearing piles shall be designed as required for reinforced concrete columns, with the exception of the allowable increased length. Except for rock bearing piles, and piles are used, which methods are reasonably certain to secure full-sized shafts. Such piles shall not be used in water or ground so soft as not to give lateral support. If concrete is cast in properly

spliced permanent steel tubes, with minimum thickness of $\frac{3}{8}$ -inch, and such piles are rock bearing, the stress in the tube may be that allowed for bars in reinforced concrete columns, but the thickness of the tube shall be assumed $\frac{1}{8}$ -inch less than that actually used.

6. Concrete piles may be cast in place when approved methods with pedestal bases, the maximum load for a concrete pile shall be 60,000 pounds.

7. Premolded concrete piles shall be designed with sufficient reinforcement so that they may be handled without damage. Such piles shall not be driven until they are sufficiently seasoned, and caps must be well protected from injury during driving. When driven to rock, they shall have metal shoes.

D. RETAINING WALLS.

Walls retaining earth, including vault and area walls, shall be of masonry or concrete, and shall be so designed to resist the earth pressure, and any water pressure there may exist, without exceeding the allowable stresses in the materials of the wall or the allowable load on the earth. In wet locations open tile drains shall be placed, or gravel-filled trenches covered with straw, shall lead the water through suitable drain holes. For the design of reinforced concrete retaining walls, retaining walls adjacent to streets, alleys, sidewalks and railroad tracks shall be designed for a surcharge equivalent to their probable live load.

E.—UNDERPINNING.

The Inspector of Buildings shall be notified before walls are underpinned, in order that he may approve the manner of doing the work.

All underpinning must be carefully executed, in short sections, so as to amply safeguard the adjoining buildings. Underpinning must be with hard brick, thoroughly bedded in Portland cement mortar, or with concrete not weaker than 1 part Portland cement, $2\frac{1}{2}$ parts of sand and 5 parts of gravel, not exceeding $2\frac{1}{2}$ inches, with a maximum slump of $6\frac{1}{2}$ inches. If brick underpinning is used, wedge bricks shall be required for underpinning all walls over 3 stories in height, and when wedge bricks are not required, brick shall be properly split, or slate wedges may be used. In concrete underpinning is used, the concrete shall be brought up to within 2 inches of the bottom of the old wall, and allowed to set for 24 hours before wedging in the remaining space with concrete. Footings under underpinned walls shall be in accordance with the requirements, except that properly designed stepped-up brick footing may be allowed.

F. CELLAR FLOORS.

Cellar floors of dwellings, apartment houses or similar buildings shall have a bed of at least 1-3-6 Portland cement concrete not less than 4 inches thick, asphalt concrete not less than 2 inches thick, or shall be paved with hard brick laid in Portland cement mortar.

PART 3.—MASONRY WALLS.

A. MASONRY WALLS, where required by this code, shall be in accordance with the requirements. For determination of the thickness of walls, the height of the top of the wall shall be taken at the highest part of that

portion of the wall under construction. When gable construction is used for dwellings, an additional 5 feet shall be permitted to the peak of the gable. When any roof surface, such as a mansard, is steeper than 4 inches horizontal to 12 inches vertical, the height of the top of the wall shall be taken at the top of such roof surface or mansard; and such steep roof surface or mansard shall have a minimum thickness of 4 inches of fire resistive construction for all buildings for which masonry walls are required. Such steep roofs or mansard may not be constructed over walls parallel to side lines and nearer than 5 feet to each side line.

The walls of every building shall be constructed as nearly simultaneously as possible, and in no case shall a wall be built more than 10 feet higher than any other unfinished wall of the same structure, unless under special permission from the Inspector of Buildings.

A course of slate shall be worked into all walls two courses above the surface of the ground, and an additional course above footings where there is a cellar or basement.

B. MORTARS.

1. Mortar Materials.

a. Portland cement shall conform to the American Society for Testing Materials Standard Specifications and Tests for Portland Cement, Serial Designation C9-21.

b. Special cement for masonry shall be a hydraulic cement conforming to the tensile strength requirements of the American Society for Testing Materials Standard Specifications for Natural Cement.

c. Lime Putty or Paste shall be made from fresh, well-burned quick-lime, or hydrated lime, which shall conform to the requirements of the American Society for Testing Materials Tentative Specifications of Quick-Lime for Structural Purposes.

d. Sand shall be free from morganic matter and shall not contain more clay and silt than 5 per cent by weight or 8½ per cent by wet volume.

2. Portland Cement Mortar shall be composed of not less than 1 part Portland Cement to 3 parts of sand, proportioned by volume, with an allowable addition of hydrated lime not to exceed 15 per cent of the cement by volume.

3. Special Cement Mortar shall be composed of not less than 1 part Special Cement for masonry to 3 parts of sand, proportioned by volume.

4. Cement-Lime Mortar shall be composed of not less than 1 part Portland cement, 1 part slaked lime (lime putty) or dry hydrated lime, and 6 parts of sand, proportioned by volume. Four parts of sand, instead of six, shall be used when such mortar is used for hollow block or hollow tile walls.

5. Portland Cement Mortar shall be used for foundation walls below grade for bearing and party walls of buildings in which completely fire-resistive construction is required, for all parapet walls, for the top 3 feet of all chimneys and flues, and for such other walls when required by the stresses in same; except that Special Cement Mortar may be used in foundation walls below grade for buildings not exceeding 55 feet in height. All other walls may be laid up with either Special Cement Mortar or Cement-Lime Mortar. Non-staining mortar may be used for setting face stone work. Retempered mortar shall not be used.

C. WALLS OF CLAY BRICK, SAND LIME BRICK, AND CONCRETE BRICK.

1. a. Clay or sand lime brick used for bearing walls or piers shall be of quality at least equal to the "medium brick" described by the Standard Specifications for Building Brick, or the American Society for Testing Material Serial Designation C21-20, except that when the average compressive strength of brick grading soft by the absorption test is more than 3,000 pounds per square inch, the requirements as to absorption may be ignored. When used for nonbearing walls, not below grade, and not exposed to the weather, brick may be of quality not inferior in any respect to the "soft brick" described in the above specifications. Hollow Clay Brick meeting the above requirements may be used.

b. Concrete brick subjected to a 24-hour immersion test shall not absorb more than 12 per cent of their dry weight, except that for brick made of concrete weighing less than 125 pounds per cubic foot the average absorption in per cent by weight shall be not more than 12 multiplied by 125 and divided by the unit weight in pounds per cubic foot of the concrete brick 28 days after being manufactured shall be not less than 1,500 pounds per square inch of gross cross-sectional area tested on edge, and the compressive strength of any individual brick shall be not less than 1,000 pounds per square inch of gross cross-sectional area tested on edge.

2. Bond. In all brick walls, at least every sixth course on both sides of the wall shall be a header course or there shall be at least one full length header in every 72 square inches of each wall surface. In walls more than 12 inches thick the inner joints of header courses must be covered with another header course which must break joints with the course below. Where running bond is used every sixth course on each face shall be bonded into the backing by cutting the face brick course and using diagonal headers behind it. Hollow brick walls with all-rowlock bond, with alternate headers and stretchers in each course, may be used in 8-inch walls; and double size brick such as "Fisklock" may be used in 8-inch walls and may extend through the entire thickness of walls, forming one or more air spaces between succeeding courses, and may be laid without bonding courses as required above. Except when there is danger from freezing, bricks shall be wet at the time they are laid.

3. The maximum allowable compression stresses, due to combined live and dead loads, in "medium" clay, sand lime and concrete brick walls or piers shall not exceed 170 pounds, per square inch when laid with Portland cement mortar, and 130 pounds per square inch when laid with Special Cement Mortar or Cement-Lime Mortar. Provided it does not exceed the allowances made for them in the design, the maximum working stresses shall not exceed 250 pounds for Portland cement mortar and 200 pounds for Special Cement mortar or Cement-Lime mortar. The thickness of brick walls and piers must be sufficient at all points to keep the stresses within the above limits. Masonry or concrete piers, concrete or steel columns, or grillage beam shall be built under all trusses, girders and beams carrying heavy concentrated loads. Bearing plates shall be of such size and thickness that the above stresses will not be exceeded.

4. a. The minimum thickness for brick exterior bearing or party walls shall be 12 inches for the uppermost 35 feet of their height, and shall be increased 4 inches for each successive 35 feet or fraction thereof, measured downward from the top of the wall; except that the top story ex-

terior bearing walls of a building not exceeding 3 stories or 40 feet in height or the exterior bearing walls of one-story garages or commercial or industrial buildings may be 8 inches thick, provided that such 8-inch walls do not exceed 12 feet unsupported height and that the roof beams are not pitched more than 1 inch in 12 inches, and except that exterior brick bearing or party walls of dwellings may be 8 inches thick when not more than 30 feet in height for solid walls of brick, and 20 feet in height for hollow walls of brick and walls of hollow brick. Where brick exterior bearing or party walls are stiffened at distances not greater than 12 feet apart by cross walls or by internal or external offsets or returns, at least 1 foot wide by 2 feet deep, they may be 12 inches thick for the uppermost 60 feet, measured downward from the top of the wall, and shall be at least 16 inches thick for the remaining lower portion of the building. Pent house walls may be 8 inches thick but all buildings shall have foundation walls not less than 12 inches thick where the foundation wall extends deeper than 4 feet 10 inches below grade. Two-story masonry buildings shall have foundation walls not less than 12 inches thick throughout. But in lieu of 12-inch walls for foundation of 1- or 2-story buildings not having masonry walls projecting abutments may be used not more than 10 feet on centers. Such abutments shall be of sizes as approved by building inspector.

D. THE MINIMUM THICKNESS FOR BRICK INTERIOR BEARING WALLS.

—shall be same as given in preceding paragraph. One story brick bearing partitions, not exceeding 12 feet in height, may be 8 inches thick.

c. The minimum thickness of brick exterior non-bearing, or curtain or enclosure walls, supporting no load other than their own weight, shall be 12 inches for the uppermost 60 feet measured downward from the top of the wall and shall be 16 inches thick for the remaining lower portion; except that the top story wall of a building not exceeding 3 stories or 40 feet in height, or the wall of a one-story garage or commercial or industrial building may be 8 inches thick, provided that such 8-inch wall does not exceed 12 feet unsupported height and except that brick non-bearing walls of dwellings may be 8 inches thick when not more than 30 feet in height.

d. Piers. The unsupported height of brick piers shall not exceed 10 times their least dimension. All bearing walls having a horizontal cross section of less than four square feet and not bonded at the sides into associated masonry, shall be considered as piers. Piers used as mullions and supporting no load other than their own weight, shall not be subject to the above requirements.

5. a. Lateral Supports of Walls. Brick walls shall be supported at right angles to the wall face at intervals of not exceeding 18 times the wall thickness in top story and 20 times the wall thickness for other stories. Such lateral support may be in the form of cross walls, piers or buttresses, when the limiting spacing is measured horizontally, or by floors or floors and roof when the limiting distance is measured vertically. Sufficient bonding or anchorage shall be provided between the wall and the supports to resist the assumed wind force, acting in an outward direction. Piers or buttresses relied upon for lateral support shall have sufficient strength and stability to transfer the wind force, acting in either direction, to the ground. When walls are dependent upon floors for their lateral support provision shall be made in the building to transfer the lateral force resisted by all floors to the ground.

b. Chases and recesses. There shall be no chases in 8 inch walls or within the required area of any pier, and no chase in any wall shall be deeper than one-third the wall thickness. No horizontal or diagonal chase in any wall shall exceed four feet in length. Recesses for stairways or elevators may be left in the walls of buildings, but in no case shall the walls be less than the required thickness of walls of the fourth story from the ground, unless reinforced by additional piers, with steel or reinforced concrete girders, or steel or reinforced concrete columns and girders, securely anchored to walls on each side of such recesses. Recesses for alcoves and similar purposes shall have not more than 8 inches of masonry at the back. Such recesses shall be not more than 8 feet in width and shall be arched over or spanned with steel to reinforced concrete lintels. The aggregate area of recesses and chases in any wall shall not exceed one-fourth of the whole area of the face of the wall in any story. No chases or recesses shall be permitted in party walls that will reduce the thickness below 8 inches.

E. WALLS OF CLAY HOLLOW BUILDING TILE HOLLOW CONCRETE BLOCK AND CONCRETE TILE.

1. a. Clay hollow building tile. Clay hollow building tile used for exterior bearing walls or piers shall be of quality at least equal to the "Medium" class, as described by the Tentative Specifications for Hollow Burnt Clay Load Bearing Wall Tile of the American Society for Testing Materials.

b. Hollow concrete block or concrete tile. The average compressive strength of hollow concrete block or concrete tile used for exterior bearing walls or piers shall be not less than 700 pounds per square inch of gross sectional area tested as used in the wall. The absorption of hollow concrete block or concrete tile shall not exceed 10 per cent under a 24-hour test, except that where hollow concrete block or tile have an average compression strength of over 1,200 pounds per square inch, or where they are not exposed to dampness, or where they are coated with stucco, the requirements as to absorption may be ignored. For block or tile made of concrete weighing less than 140 pounds per cubic foot, the average absorption in per cent by weight shall be not more than 10 multiplied by 140 and divided by the unit weight in pounds per cubic foot of the concrete under consideration.

2. The maximum allowable compressive stresses, due to combined live and dead loads in walls or piers of clay hollow building tile, hollow concrete block or concrete tile, with cells either vertical or horizontal shall not exceed 80 pounds per square inch of gross sectional area, when laid with Portland cement mortar and 70 pounds per square inch of gross sectional area, when laid with Special Cement Mortar or Cement-Lime Mortar. The thickness of such walls and piers shall be sufficient at all points to keep the stresses within the above limits.

3. a. The minimum thickness of walls of clay hollow building tile, or hollow concrete block or concrete tile shall be 12 inches for the uppermost 65 feet of their height, and shall be at least 16 inches for the remaining lower portion; except that the top story walls of a building not exceeding 3 stories or 40 feet in height, or the walls of one story garages or commercial or industrial buildings may be 8 inches thick provided that such 8-inch walls do not exceed 12 feet unsupported height and that the roof beams are not pitched more than one inch in 12 inches; and except that exterior and party walls of dwellings may be 8 inches thick, for the uppermost

20 feet and 12 inches thick for the remainder. Where walls of the above types are stiffened at distances not greater than 12 feet by cross or by internal or external return at least one foot wide by two feet deep, they may be 12 inches thick throughout. Walls of clay hollow building tile, hollow concrete block or concrete tile shall not exceed 50 feet in height, except that party walls for dwellings shall not exceed 40 feet in height. Pent house walls may be 8 inches thick; private garages less than 400 square feet in area may have 6 inch walls; private garages less than 250 square feet in area may have $3\frac{3}{4}$ inch walls; bearing partitions in private garages may be $3\frac{3}{4}$ inches thick. One story bear-partitions of clay hollow building tile, hollow concrete block or concrete tile shall be not less in thickness than one-eighteenth of the height between floors except as above noted.

b. Piers of clay hollow building tile or hollow concrete block or concrete tile shall be solidly filled with concrete. The unsupported height of such piers shall not exceed ten times their least dimension. All bearing walls have a horizontal cross section of less than four square feet and not bonded at the sides into associated masonry, shall be considered as piers. Own weight shall not be subject to the above requirements.

4. a. The required later support of walls of clay hollow building tile or hollow concrete blocks or concrete tile shall be the same as for brick walls under the same conditions, except that the intervals shall not exceed 16 times the wall thickness for top story and 18 times for the other stories.

b. Chases and Recesses. Chases and Recesses in walls of clay hollow building tile, hollow concrete block or concrete tile shall not exceed in extent those permitted for brick walls under the same conditions. Chases and recesses shall not be cut in these walls, but must be built in.

c. Beam Supports. Suitable provision shall be made at each line of floor joists in hollow walls or walls of hollow units to shut off the spaces above from those below, and to insure proper bearing for joists and uniform distribution of loads. Hollow walls or walls of hollow units shall have a course of brick or a 1-inch tile layer beneath wood joists, or joists hangers, and the course of hollow units on which small beams rest shall be filled solid with concrete, for 3 feet in width. Joists hangers must be used unless recesses for joists are provided at the time the wall is built.

F. STONE WALLS.

1. a. The maximum allowable compressive stresses in rubble stone walls, due to combined live and dead loads, shall not exceed 130 pounds per square inch for that laid in Portland cement mortar, and 100 pounds per square inch for that laid in special cement mortar or cement-lime mortar.

b. The maximum allowable compressive stresses in ashlar masonry, due to combined live and dead loads, shall not exceed the following:

Granite in Portland cement mortar, 800 pounds per square inch.

Limestone, sandstone and marble in Portland cement mortar, 500 pounds per square inch.

Granite in cement-lime mortar or special cement mortar, 650 pounds per square inch.

Limestone, sandstone and marble in cement-lime mortar or special cement mortar, 400 pounds per square inch.

c. The thickness of walls shall be sufficient at all points to keep the stresses within the above limits.

2. a. Rubble stone walls shall be 4 inches thicker than required for brick walls under the same conditions, but in no part less than 14 inches.

b. Walls and piers of ashlar masonry or ashlar faced masonry properly bonded shall be the same thickness throughout as is required for brick walls under the same conditions.

3. Bond. Bond stones extending through the wall shall not be less than 10 per cent of the area of the wall uniformly distributed, and there shall be at least one bond stone for every eight stretchers.

4. Chases and recesses. Chases and recesses in stone walls shall not exceed in extent those permitted for brick wall under the same conditions.

G. FACED WALLS.

1. Faced walls, the facing and backing of which are integral parts designed to exert common action under load, shall have the materials in the backing and facing conform in all respects to the requirements prescribed above for such materials. Materials used for facing shall be not less than 1½ inches thick, and in no case less in thickness than one-eighth the height of the highest units.

2. Bond. Brick facing shall be bonded to walls or brick or of clay hollow building tile, or of hollow concrete block or tile with at least one header course in every six courses, or there shall be at least one full length header in every 72 square inches of wall surface. Header courses may be every ninth course for brick faced tile backed walls in the upper story where such walls are not more than 12 feet in height nor less than 12 inches thick. Metal wall ties shall not be used for masonry walls less than 12 inches thick, and when used shall be not less than 12 inches apart horizontal, and vertical.

Stone ashlar facing shall have at least 20 per cent of the superficial area not less than ¾ inches thicker than the remainder of the facing to form bond stones, which shall be uniformly distributed throughout the wall.

If part of the stones in every alternate course are at least 7½ inches thick, bonded into the backing at least ¾ inches, and at least 20 per cent of the superficial area of the wall is constituted of such bond stone uniformly distributed, the ashlar facing may be counted as part of the wall thickness. Every stone not a bond stone, and every projecting stone, shall be securely anchored to the backing, with substantial, non-corrodible metal anchors. No wall faced with ashlar shall have less than 12 inches total thickness.

3. Working Stresses. Maximum stresses on faced walls due to combined live and dead loads shall not exceed those elsewhere prescribed for masonry of the type which forms the backing. Where bonded to the backing as provided for above, the facing may be considered in computing bearing strength.

4. Thickness. Faced walls shall not be less in thickness or exceed the height allowed for masonry walls of the type which forms the backing. Where bonded to the backing as provided for above, the facing may be considered a part of the wall thickness.

H. VENEERED WALLS.

1. Veneered Walls, the facing of which is not sufficiently attached and bonded to the backing to form an integral part of the wall for the purpose of load bearing stability, shall have the materials in the backing and veneering conform in all respects to the requirements, prescribed

above for such materials. Stone, architectural terra cotta, or other approved masonry material used for veneering shall be not less than 3 inches thick. In stone ashlar, each stone shall have a reasonably uniform thickness, but all stones need not necessarily be the same thickness. Architectural terra cotta shall be thoroughly backed up and the hollow spaces, except in projecting portions, thoroughly backed up with brick and mortar. Cornices and parapets shall have the top joints sealed against entrance of water.

2. Working Stresses. Maximum stresses on the backing of veneered walls due to combined live and dead loads shall not exceed those elsewhere prescribed for masonry of the type which forms such backing. In no case shall the veneering be considered a part of the wall in computing the strength of bearing walls, nor shall it be considered a part of the required thickness of the wall.

3. Attachment of Veneering. When wall are veneered with brick, terra cotta or stone the veneering shall be tied into the backing either by a header for every 300 square inches of wall surface, or by non-corrodible metal wall ties spaced not farther apart than one foot vertically and two feet horizontally. When veneering is used special care shall be taken to fill all joints flush with mortar around wall openings. Headers shall project at least $3\frac{3}{4}$ inches into the backing, and anchors shall be of substantial pattern.

4. Height of Veneered Walls. Veneered walls shall not exceed 40 feet in height

I. PANEL WALLS.

1. Panel walls shall include non-bearing walls supported by and built between columns or piers and wholly supported at each story. Panel walls shall not overhang supporting beams by more than one-third the thickness of the walls.

2. Panel walls shall be not less than 8 inches thick if of brick, clay hollow building tile, hollow concrete block or concrete tile, or hollow walls of brick. Plain concrete panel walls may be 6 inches thick.

3. Veneered panel walls shall have a minimum thickness of backing of 8 inches of brick, hollow building tile or hollow concrete block or concrete tile, and veneering shall be attached as required above and fully supported every 40 feet in height.

4. Header courses may be every ninth course for brick faced tile backed panel walls, when 12 inches and over in thickness.

J. CONCRETE WALLS.

1. a. Monolithic concrete construction containing less than two-tenths of 1 per cent of reinforcement computed on a vertical or horizontal distance of 12 inches, shall be classed as plain concrete. Concrete for bearing walls and piers of plain concrete shall not be weaker than 1 part Portland cement, $2\frac{1}{2}$ parts sand and 5 parts of gravel; and for reinforced concrete not weaker than 1 part Portland cement, 2 parts sand and 4 parts of gravel. Slump shall not exceed $8\frac{1}{2}$ inches.

b. Reinforcement of not less than two-tenths of 1 per cent, computed on a vertical height of 12 inches, shall be placed over all wall openings and at corners of the structure to prevent cracks. Floor and roof connection details shall be designed to transmit safely the vertical and horizontal loads imposed.

2. The maximum allowable compressive stresses in plain concrete due to combined live and dead loads shall not exceed 400 pounds per square inch in walls and piers, and for reinforced concrete 500 pounds. The

thickness of walls and piers shall be sufficient at all points to keep the stresses within the above limits.

3. a. The minimum thickness of concrete bearing walls shall be 10 inches for the uppermost 35 feet of their height and shall be increased 4 inches for each successive 35 feet or fraction thereof, measured downward from the top of the wall, except that the top story wall of a building not exceeding 3 stories in height, or the wall of a one story garage or commercial or industrial building may be 8 inches thick provided that such 8 inch wall does not exceed 12 feet unsupported height and that the roof beams are not pitched more than 1 inch in 12 inches; and except that exterior bearing walls of dwellings may be 6 inches thick when not more than 30 feet in height. When such walls are stiffened at points not more than 12 feet apart by cross walls, or by internal or external offsets or returns; at least 1 foot wide by 2 feet deep, they may be 10 inches thick for the uppermost 60 feet of their height and shall be not less than 14 inches for the remaining lower portion.

b. The minimum thickness of concrete exterior non-bearing, or curtain or enclosure walls, supporting no load other than their own weight, shall be 10 inches for the uppermost 60 feet of their height measured downward from the top of the wall, and shall be at least 14 inches thick for the remaining lower portion; except that the top story wall of a building not exceeding 3 stories or 40 feet in height or the wall of a one story garage or commercial or industrial building may be 8 inches thick, provided that such 8 inch wall does not exceed 12 feet unsupported height, and that exterior non-bearing walls of dwellings may be 8 inches thick when not more than 30 feet in height.

c. Hollow monolithic walls of plain concrete shall have the same net cross section area of material, irrespective of the space within the wall, as required for solid walls. The inner and outer parts of such walls shall be securely braced and tied together with non-corrodible ties or other means to bring them into common action. Where floor and roof systems are carried by such walls, provision shall be made for the distribution of these loads to the full cross section of the walls.

d. Monolithic cinder concrete walls of approved cinders shall be subject to the same requirements as hollow concrete block walls.

e. Precast solid concrete units, such as the Nelson System, with reinforcement in both directions, and with the joints poured at the site, shall be considered as concrete walls; such units 4 inches thick may be used for private garages

f. No bin or tank wall of reinforced concrete or reinforced solid concrete units shall be less than 6 inches thick.

g. Concrete piers and columns shall be designed in accordance with the requirements.

4. a. The required lateral support of concrete walls shall be the same as for brick walls, under the same conditions.

b. Chases and recesses. Chases and recesses in plain concrete walls shall not exceed in extent those permitted for brick walls under the same conditions.

K. FOUNDATION WALLS.

1. Foundation walls shall include all exterior walls below grade.

2. Foundation walls for solid wall construction shall be of brick, concrete or stone. Brick foundation walls and those of concrete or coursed stone shall not be not less in thickness than the walls immediately

above them and in no case less than 12 inches, except that when the enclosure is not excavated they may be 8 inches thick if included within the allowable height of 8 inch walls. When built of concrete, foundation walls shall be at least as thick as the walls supported, but in no case less than 8 inches thick. Rubble stone shall not be used as foundations for buildings over 35 feet high.

3. Foundation walls for walls of hollow building tile, hollow concrete block, hollow walls of brick or hollow building tile. Hollow tile and block foundation walls shall be not less than 12 inches thick, but shall not be required to be filled with concrete.

4. When the stresses due to earth pressure are superimposed building load exceed the maximum working stress specified, the wall thickness shall be increased to bring them within these limits.

5. Foundation walls for frame construction shall extend at least 8 inches above the adjoining grounds surface, shall be at least 8 inches thick, and hollow tile or block walls shall not be required to be filled with concrete. When the height of earth against foundation walls of frame buildings exceeds 5 feet, additional thickness will be required.

6. Foundation walls shall be waterproofed with $\frac{3}{4}$ inch of cement plaster or other effective means, and in wet locations open tile drains shall be placed around the footings on the outside, discharging into an out-fall or sewer.

L. ORIEL AND BAY WINDOW WALLS.

Walls of oriel windows on buildings for which masonry walls are required shall be of structural steel or reinforced concrete construction, securely connected to cantilever floor construction and to walls; such construction to be filled in with masonry having a minimum thickness of $3\frac{3}{4}$ inches. Walls of bay windows may be constructed as required above for walls of oriel windows. Such oriel and bay window construction on side walls shall not be within 5 feet of a party line, unless masonry is 8 inches thick.

M. WALLS IN CONNECTION WITH FIRE-RESISTIVE ROOFS.

Where vertical walls in connection with fire-resistive roofs are protected by suspended ceilings they may have a minimum thickness of $3\frac{3}{4}$ inches of masonry, and where not protected by suspended ceilings, shall have a minimum thickness of 8 inches of masonry. Such walls shall not be within 5 feet of a party line, and not within 5 feet of a parallel exterior wall unless masonry is 8 inches thick.

N. CHIMNEYS, STACKS AND FLUES.

1. Chimneys, stacks or flues for high pressure boilers and other appliances producing a corresponding temperature shall be of brick, reinforced concrete or structural steel, and shall be lined with $3\frac{3}{4}$ inches of fire brick, laid in fire mortar, for at least 25 feet above the intake. Such chimneys shall be designed, subject to the approval of the Inspector of Buildings, to conform to recognized practice for the design of chimneys.

2. The walls of chimneys used for stoves, ranges, fire places, heating furnaces and other low pressure heating appliances shall have a minimum thickness of 8 inches of masonry exclusive of flue lining, except that where flues do not exceed 18 inches square, $3\frac{3}{4}$ inches of brick or concrete in addition to the required flue lining may be used for the exterior walls and for the division walls between flues, and except that rubble stone

chimneys shall have a minimum thickness of 12 inches. All outside walls of isolated chimneys shall have a minimum thickness of 8 inches when the masonry is not supported at each floor. Concrete chimneys shall be properly reinforced for expansion. Chimneys shall be securely bonded into the walls and be adequately anchored to the framework, when walls are carried on beams and columns.

3. Clay hollow building tile, hollow concrete block and concrete tile walls shall not be used for isolated chimneys, or for other chimneys exceeding 55 feet in height. If tile or block are used for the interior walls of a chimney, they shall be built of two layers breaking joints.

4. No tile or block wall, and no other wall less than 12 inches in thickness shall support a corbeled chimney and corebeling shall be at least 15 inches high, and shall not exceed 8 inches from the face of the wall.

5. Chimneys shall be built at least 2 feet above the ridges of pitched roofs, and at least 3 feet above other roofs; and shall be properly capped, but such capping shall not reduce the available area. The upper 3 feet of all chimneys shall be laid up in Portland cement mortar. Joints between chimneys and roofs shall be properly flashed to allow for expansion.

6. Except where fire brick are used, all chimneys shall have flue linings, with a minimum thickness of $\frac{3}{4}$ inch of fire clay, or other approved terra cotta which is adapted to withstand high temperatures and the resulting gases from burning fuel. Flue linings for stoves, ranges and automatic gas hot water heaters shall have a minimum inside area of 49 square inches; flue linings for furnaces and fire places shall have a minimum inside area of 75 square inches; and flue linings for domestic gas-burning appliances shall have a minimum inside area of 10 square inches. Not more than two flue linings, with joints breaking, may be in contact with each other.

7. There shall be but one connection to each flue. Flue linings shall be laid up in Portland cement mortar, with smooth inside joints. Flue linings shall extend the entire height of chimneys and 5 inches above the cap. Flue linings may be omitted for chimneys where flues would be larger than 18 inches square, but such chimneys shall be lined with $3\frac{3}{4}$ inches of fire brick, laid in fire mortar, for at least 25 feet above the intake. Approved terra cotta pipe may be used instead of fire brick linings.

8. Smoke pipe intakes to flues shall be made of clay or metal thimbles securely set with Portland cement mortar. No metal smoke pipe shall pass through any floor or roof. Proper cleanout doors shall be placed below all intakes.

9. Exterior steel stacks, 4 inches clear of the masonry, and interior steel stacks, 4 inches clear of surrounding 6 inch hollow building tile, concrete, or solid gypsum partitions, may be used instead of masonry chimneys as required above.

O. PARTY WALLS

1. Party walls may be established only by contract between the owners in whose line said wall is to be erected. Masonry party walls shall be of clay brick; except that when the consent of the adjoining owner is filed such walls may be of sand lime brick, concrete brick, clay hollow building tile, hollow concrete block, concrete or ashlar stone. The thickness building tile and hollow concrete block party walls may only be used between dwellings shall be the same as required for brick walls. Clay hollow between dwellings not exceeding 40 feet in height, and private garage. The

maximum projection of a party wall upon the adjoining lot shall be 8 inches unless the consent of adjoining owner for the additional projection is filed; and in all cases where a party wall is constructed, the party line shall be preserved by receding 4 inches from the building line, with that portion of the wall that extends over the party line.

2. Party walls shall have parapets at least 12 inches above adjacent roof surfaces, and such parapet walls shall be coped or otherwise protected from the weather. Joists bearing on both sides of 8 inch party walls must be staggered; however, no 8 inch party wall shall be broken or cut into subsequent to its completion, for the insertion of structural members.

3. No wooden beam or joist shall cross the party line on a masonry party wall; however, when the consent of the adjoining owner is filed, steel or concrete beams may cross the party line.

4. When the building owner increases the height of a party wall, he shall carry up at his expense all smoke flues and vent pipes connected with such which belongs to the adjoining property, to a height of three feet above the new roof.

5. Party walls supported by beams and columns will be permitted after an agreement relating thereto, signed by adjoining owners, has been filed with the Inspector of Buildings. Agreement must release, relinquish and indemnify the Maryland-National Capital Metropolitan District and its employees as to all claims for damages that may arise from the location or construction of such party walls. Such party walls shall be constructed in accordance with plans approved by the Inspector of Buildings and in conformity with these regulations as to construction, the location being a matter of agreement between adjoining owners or parties to the land affected. Unless said agreement defines the manner in which such wall shall be built, the party wall shall be constructed with sufficient strength in foundations and framework to support another adjoining similar building, and in case of alterations to existing buildings said wall must be of sufficient strength to support the combined loads of adjoining buildings. When application is made for permit to build on an adjoining lot, the owner shall submit complete information regarding the columns and beams in the party wall already constructed, and also complete information regarding the new construction to be supported by them. The underpinning of such wall foundations when necessary, must be done by agreement of adjoining owners, as in the case of the location of the party wall.

PART 4. MASONRY, TILE AND CONCRETE ARCHES AND DOMES.

A. BRICK AND STONE ARCHES:

1. Brick segmental floor arches, laid in Portland cement mortar, shall have a thickness not less than 8 inches for spans more than 5 feet or less, and of not less than 8 inches for spans more than 5 feet and less than 8 feet between webs of beams. Brick arches shall have a rise of not less than 1 inch per foot of span. Thrust of arches shall be taken up by steel tie rods. Brick arches shall not be used where fire-resistive construction is required if bottom flanges of steel bears are exposed.

2. Brick and stone arches in walls shall be capable of sustaining the weight and pressure which they are to carry, and the stress at any point shall not exceed the allowable stress. The rods shall be used where necessary to resist the thrust. Brick and stone arches shall not support concentrated loads.

B. HOLLOW TILE ARCHES.

1. Floor and roof arches shall be of hard burned tile, having shells and webs not less than $\frac{1}{2}$ inch thick. Arches may be either flat or segmental, and either end, or combination side and end construction. The skewbacks shall accurately fit the beams and properly receive the thrust of the arc. All arches shall be properly keyed with key blocks, and arches shall be taken up by steel tie rods.

2. Flat tile arches shall have a depth of not less than $1\frac{1}{4}$ inches for each foot of span between the webs of the steel beams. This minimum depth of arch shall be increased 2 inches if the live load exceeds 100 pounds per square foot. Segmental tile arches shall have a minimum depth of 6 inches, and the arch shall have a rise of not less than 1 inch per foot of span. No hollow tile flat arch span shall exceed $9\frac{1}{2}$ feet between webs of beams. Hollow Tile "Book Tile" when used for roof construction shall have a depth of not less than 3 inches and a maximum length of 24 inches.

C. CONCRETE AND LAMINATED TILE ARCHES AND DOMES:

1. Laminated tile arches and domes shall be built up of courses of flat tile, properly bonded, solidly bedded and thoroughly grouted in Portland cement mortar. The maximum stress in the tile in direct compression and in extreme fibre in bending shall be 300 pounds per square inch. The maximum stress for shear shall be 100 pounds per square inch. If laminated tile construction is reinforced with steel bars, the allowable stresses for the bars shall be as specified. The specifications for concrete arches and domes and the allowable stresses shall be as given.

2. If horizontal reactions of arches and domes are not completely resisted by steel ties or rings, computations shall be submitted, showing the ability of the supporting masonry to properly withstand the overturning moments

PART 5. GYPSUM.

A. SPECIFICATIONS FOR GYPSUM:

1. Gypsum used in the construction of floors and roofs, where applied in designs similar to reinforced concrete, in which the gypsum act structurally with the reinforcement in the resistance to, and distribution of stresses, shall conform to the requirements of the American Society for Testing Materials Tentative Specifications for Gypsum, Serial Designation C22-23 T.

2. Gypsum when applied in the form of reinforced suspension systems, may contain, intimately mixed, not more than 15 per cent by weight of wood chips, excelsion or fiber. Gypsum for roof tile, for unsupported spans of 30 inches and less, may contain a small quantity of the above fibrous material, such material not to reduce the compressive strength below that required in the following paragraph.

3. The gypsum composition for reinforced suspension systems, when dried to constant weight, shall develop an ultimate compressive strength of not less than 400 pounds per square inch. The gypsum composition for roof tile or unsupported spans of 30 inches and less, when dried to constant weight, shall develop an ultimate compressive strength of not less than 625 pounds per square inch. The gypsum composition for long span channel type of roof tile, when dried to constant weight, shall develop an ultimate compressive strength of not less than 1,800 pounds per square inch.

B. FLOOR AND ROOF SUSPENSION SYSTEMS OF GYPSUM:

1. Gypsum suspension systems, poured in place or pre-cast, shall be not less than three inches in thickness, and shall be designed to safely carry the total loads, and shall be of such character in which the stress in the suspension wires or cables shall be determined by the formula:

T equals

$$T = \frac{WE}{8D} + \frac{V}{L^2 - 16 D^2}$$

where T is the maximum tension in the wires or cables, W the total load per unit length for each wire or cable, L the length of clear span between supports, and D the deflection or dip of the wires or cables at the center of the span.

2. The wires or cables employed shall be of cold drawn steel of at least 80,000 pounds per square inch ultimate strength and in which the allowable working stress shall not exceed 20,000 pounds per square inch. All wires or cables shall be held uniformly to the required deflection by steel bobs laid in the center of each panel parallel to the supporting beams or members and must be kept firmly tied to the form work until the gypsum composition has become set. All wires or cables shall be completely encased in the gypsum composition and the ends shall be securely anchored to the supporting construction independently of the gypsum, or to anchorage supports which shall be properly braced to resist the initial tension which exists in the reinforcement before the gypsum composition has set.

3. Suspension systems which are pre-cast shall be of such character as to provide means for the wires or cables in each unit to be secured to the wires or cables in the abutting unit in such manner that each reinforcing unit shall be continuous between anchorage points. All wires or cables shall be in such position at joints as to permit of their being completely embedded in gypsum grout. All pre-cast suspension systems shall be so designed as to provide for the firm anchorage of the suspension wires or cables in the end slabs to supporting construction.

C. REINFORCED GYPSUM ROOF TILE:

1. Reinforced gypsum roof tile may be either of the short span solid type not less than 3 inches thick and not exceeding 30 inches in length, or of the long span channey type with closed ends, not exceeding 10 feet in length.

2. The steel reinforcement provided to take the tensile stresses shall be anchored within the gypsum by looping, or shall be of such form, and shall be embedded within the gypsum composition in such manner and position, that it will resist all tensile stresses and will assist in the resistance of shear along proper structural lines so that the stresses in the combination can be ascertained by computation and verified by tests. In solid tile, the location of the steel reinforcement shall be shown by either indentations at the proper places, exposure of the steel at the ends, or by stamping the tile with the words, "This Side Up."

3. Reinforced gypsum roof tile shall be so proportioned that the maximum stresses in pounds per square inch shall not exceed the following:

Tensile stress in steel	18,000
Compression in extreme fibre of gypsum	350
Shear in gypsum	20
Bond between gypsum and steel	30
Bearing of gypsum on looped reinforcement ment, anchor plates or crossed welded wires	300
Modulus of elasticity of gypsum	1,000,000

PART 6. TIMBER.

A. SPECIFICATIONS FOR TIMBER.

1. All timber shall be of good quality, free from large or loose knots, wind shakes, rots, or other imperfections whereby the strength or durability may be impaired. Spiral grained timbers, where the twist exceeds 1 to 15, shall not be used for columns and trusses.

2. Shortleaf yellow pine (N.C.) shall conform to the Rules for Plank and Dimension Sizes of the North Carolina Pine Association, adopted August, 1924; or Shortleaf yellow pine shall conform to the Rules for No. 2 Common Dimension of the Southern Pine Association, adopted July 1, 1924.

3. Longleaf yellow pine (Ga.) shall conform to the Rules for select structural grade of the Southern Pine Association, adopted July 1, 1924.

4. Douglas Fir shall conform to the Rules for select common structural grade of the West Coast Lumbermen's Association, adopted June 27, 1924.

5. Other timber shall conform to the standards of their respective manufacturer's association.

B. ALLOWABLE STRESSES FOR TIMBER:

All timbers shall be so proportioned that the maximum stresses in pounds per square inch shall not exceed the following:

	For Shortleaf Yellow Pine (N.C.) Red or White Eastern Spruce; Rocky Mountain Douglas Fir	For Longleaf Yellow Pine (Ga.); Red or White Oak; Pacific Coast Douglas Fir
Modulus of elasticity	1,200,000	1,600,000
Bending, extreme fibre	1,000	1,500
Tension, parallel to grain	800	1,200
Shear parallel to grain	110	180
Horizontal shear in bending	80	110
Compression perpendicular to grain	300	325
Compression parallel to grain—columns.	Except 500 for oak	
L		
For $\frac{L}{D}$ less than 12	800	1,100
D		
L		25L
For $\frac{L}{D}$ from 12 to 30	1,100	1,500 — $\frac{34L}{D}$
D		D

L—length in inches.

D—width in inches.

2. The allowable extreme fibre stresses in bending for longleaf yellow pine (Ga.) and Pacific Coast Douglas Fir may be increased to

1,750 pounds per square inch, provided the timbers show on either end an average of at least six annual rings per inch and at least one-third summer wood, or else the greater number of the rings shall show at least one-third summer wood, all as measured over the third, fourth and fifth inches on a radial line from the pith. Wide-ranged material excluded by this rule will be acceptable, provided that the amount of summer wood as above measured shall be at least one-half.

3. The above stresses shall be decreased by 25 per cent for timbers exposed to moisture.

4. The above stresses may be increased by 25 per cent for temporary supports if protected from moisture, and for concrete forms.

5. For timber beams and joists the deflection caused by the live load, only, shall not exceed 1-360 of the span.

C. SPANS FOR FLOOR AND ROOF JOISTS.

1. Floor spans are for double flooring and plaster ceiling, but no partitions. Floor joists carrying nonbearing partitions running in the same direction shall be double. When nonbearing partitions cross joists near their center, those joists shall be of size required for a span 2 feet greater than the actual span. Roof spans are for 4-ply slag roof and sheathing but no ceiling

2. The following maximum clear spans are for standard commercial sizes of Short Leaf Pine.

Nominal Size of Joists.	Spacing Center to Center.	Roofs 30 Pounds Live Load.	Floors for Dwellings, etc., 40 Pounds Live Load.	Floors for Offices etc., 70 Pounds Live Load.	Floors for Stores etc., 100 Pounds Live Load.
2" x 6"	16"	10'	9'	.....	.....
2" x 8"	16"	13½'	12'	9½'	.....
2" x 10"	16"	17'	15'	12'	10½'
2" x 10"	12"	19'	17'	13½'	12'
2" x 12"	16"	20½'	17½'	14¼'	12¾'
				14½'	12½'
2" x 12"	12"	23'	20'	16½'	14½'
3" x 12"	16"	.....	22'	18'	15½'
3" x 12"	12"	.....	.....	20½'	18'

3. The following maximum clear spans are for standard commercial sizes of Short Leaf Pine.

Nominal Size of Joists.	Spacing Center to Center.	Roofs 30 Pounds Live Load.	Floors for Dwellings, etc., 40 Pounds Live Load.	Floors for Offices etc., 70 Pounds Live Load.	Floors for Stores etc., 100 Pounds Live Load.
2" x 6"	16"	11'	10½'	.....	.....
2" x 8"	16"	15'	14½'	11½'	.....
2" x 10"	16"	19'	18'	14¾'	12½'
2" x 10"	12"	21'	19'	16½'	14½'
2" x 12"	16"	23'	21½'	17½'	15'

2" x 12"	12"	....	23½'	19'	17½'
3" x 12"	16"	....	....	20½'	18'
3" x 12"	12"	....	....	22½'	20'
3" x 14"	16"	....	....	....	21½'

The above spans do not apply to the denser grades of Longleaf Yellow Pine and Pacific Douglas Fir, for which an increased fibre stress is allowed.

4. The spans as given above are for the more common uses of joists, and they shall not be used for special cases which will exceed the allowable stresses

D. FRAMING REQUIREMENTS FOR TIMBER CONSTRUCTION.

1. See Section II, Part 3, frame walls, fire-stopping and other requirements for frame construction.

2. All wooden structural members shall be of sufficient size and strength to carry the loads without exceeding the allowable working stress. The strength of such members shall be determined from actual dimensions of the pieces and not from nominal dimensions. No structural members shall be less than 1⅜ inches actual measurement.

3. All members shall be so framed, anchored, tied and braced together to develop the maximum strength and rigidity consistent with the purposes for which they are used.

4. Each tier of floor joists shall be securely anchored to masonry walls with T-shaped steel anchors at intervals of not more than 6 feet, and anchors shall be attached in a way to afford easy release in case of fire burning through the joists. The ends of lapped joists resting upon girders or bearing partitions shall be securely spiked. When butted they shall be connected with steel straps or dogs.

5. Every joist supported by masonry shall have bearing at least 3 inches in length. The ends of joists resting in masonry walls shall beveled to release the joist from the wall in case of fire. Approved joist hangers may be used.

6. Joists running parallel to masonry inclosing walls, including stair carriages, shall be anchored to the walls at least once between bearings with steel anchors. Such anchors shall extend back and engage at least three joists. Girders shall be anchored to the walls and fastened to each other in a suitable manner with steel straps, and shall be beveled to release the girder from the wall in case of fire.

7. When inclosing walls are of wood, each joist, beam and girder entering same shall be securely spiked or anchored to the wall construction. Where joists rest upon ledger or ribbon boards they shall be securely spiked to the studs. Wooden structures where resting on masonry foundation or other walls shall have steel anchors not less than four-tenths square inch in cross section, extending down into the wall not less than 2 feet, and spaced not over 6 feet apart.

8. All floor joists and roof rafters shall be rigidly bridged at intervals not exceeding 8 feet. Rafters shall be vertically supported near the ridge when the slope is less than 6 inches per foot, and all rafters shall be thus supported unless their feet are thoroughly tied at the plate.

9. Each header more than 4 feet long and trimmers for same shall be at least twice the thickness of the floor joists. Headers and tail beams shall be hung on approved joist hangers.

10. Floor timbers shall not be cut for piping or other purposes in such a manner as to reduce the strength below that required. If changes in, or repairs to, plumbing pipes are made in existing buildings, no structural member shall be cut without first obtaining approval from the Inspector of Buildings.

11. Wood studding, except for private garages, shall be not less than 2 by 4 inches and spaced not to exceed 18 inches on centers, and with long dimension at right angles with the plane of the wall or bearing partition.

12. Wooden beams or joists shall not enter any hollow tile or block or any other 8 inch party walls unless recesses for timbers on both sides are provided at the time the wall is built. The cutting of such walls for joists shall not be permitted, and joists hangers shall be used. In all masonry walls the joists on opposite sides shall be so placed as to provide at least $3\frac{3}{4}$ inches of solid masonry between them.

13. Buildings without cellars or basements shall have at least four metal wall ventilators located in the foundation walls below any wood floor joist and distributed on opposite sides of the building, and no wood-work shall be less than 6 inches clear of the ground.

14. Bearing partitions shall be provided at the top with double plaes, each at least 2 inches thick and of same width as stud. Nonbearing partitions shall be provided with at least one 2 inch plate on top and bottom of same width as stud or be otherwise properly fire-stopped at floor lines. When the studs are places directly below each joist, a single top plate may be used. If properly fire-stopped, studs may run through the floor and rest on girders or on partition plates.

15. All partitions not resting upon girders, or of which the studs do not rest on partition plates below, shall have sole plates of dimensions not less than the studs. Partitions unsupported by walls shall be supported on girders or double joists, or on sole plates if placed at an angle to the joists.

16. Wooden columns shall rest on metal or masonry footings extending at least 3 inches above the basement or cellar floor, or 12 inches above adjacent ground.

17. Complete details shall be given for all wooden trusses; such trusses shall be so detailed as to provide against dangers due to splitting, shrinking or warping of timbers.

PART 7. FORMED STEEL JOISTS.

A. SPECIFICATIONS FOR FORMED STEEL JOISTS:

1. Formed steel joists shall be made of rolled sheet or strip steel, with a minimum thickness of 0.072 inch, whose component parts shall be securely spot welded or rivited together in sections similar to standard structural steel sections.

2. The flange width of formed steel joists shall not exceed one-half of their depths, except that flanges of joists 5 inches or less in depth may be three-fourths of the joist depth.

3. The use of spliced steel joists will not be permitted.

4. The spacing of formed steel joists shall not exceed 24 inches center to center, and they shall be bridged with tension cross bridging 6 feet on centers; the first row of bridging to be not more than 3 feet from the ends of the joists.

5. When formed steel joists are supported on structural steel beams or shelf angles, they shall have a minimum bearing of $2\frac{1}{2}$ inches; when supported on masonry walls a minimum bearing of one-half their depth, but not less than 4 inches; and when supported by reinforced concrete beams, a minimum bearing of 2 inches in the stem of the beam. In the latter case, consideration shall be given to the reduction of the strength of the concrete beams in shear. Every third joist shall be anchored to masonry walls.

6. Framing around large openings such as elevator or stair walls shall be structural steel or reinforced concrete, but steel joists may be used around small vent shafts or similar openings. Riveted or bolted connections of joists shall not be used to transmit shear.

7. All sheet or strip steel shall be dipped in oil before being formed and all formed steel joists shall receive a protective coat of lead and oil, or other high-grade preservative paint, at the factory, and a second field coat after erection.

B. DESIGN OF FORMED STEEL JOISTS:

1. The maximum allowable unit stresses for formed steel joists shall be those specified for structural steel.

2. Former steel joists shall be designed to resist all stresses independent of any protective covering.

3. Formed steel joists shall not be considered as resisting wind stresses.

4. For formed steel joists, the deflection caused by the live load, only, shall not exceed 1-360 of the span.

C. FIRE-RESISTIVE PROTECTION OF FORMED STEEL JOISTS:

1. Where fire-resistive construction is required, formed steel joists shall be protected as required in "Fire Prevention and Protection Regulations," and where non-fire-resistive construction is permitted, the protection shall be as otherwise required in said Regulations.

2. See above Fire Regulations for buildings where plastered ceiling protection is allowed.

D. PROHIBITED USES OF FORMED STEEL JOISTS :

1. Formed steel joists shall not be used in floor panels having less than 3 feet of wall ventilated air space below, or in floor panels over damp basement or over laundries, kitchens or similar places where steam or gases are liable to produce excessive corrosion. The above prohibition shall not apply to private laundries or kitchens.

Article IV. Precautions and Safeguards.

PART 1. BLASTING.

A. It shall be unlawful to blast within the Maryland-Washington Metropolitan District of said town without having first obtained a permit for same. Before a permit shall be issued, applicants will be required to pass an examination to determine their fitness for supervising blasting operations. Persons securing permits for blasting shall use the utmost care and caution to prevent stones and other material from flying and endangering life and property.

B. No person shall use in a blasting operation a quantity of explosives greater than necessary to properly start the object it is intended to rend or separate; but the Inspector of Buildings shall have authority to prescribe the maximum quantity of explosives to be used.

C. Immediately after loading and tamping the hole, and before firing the blast, the material to be blasted shall be covered on all exposed sides with a strong woven matting or rope or wire at least 1½ inches in diameter, and at least 12 timbers, each 10 feet long and 10 inches in smallest diameter held securely together by chains or by iron or steel cables at least ¾ of an inch in diameter. After the material has been thus covered, the blast shall be fired without unnecessary delay. The Inspector of Buildings shall have authority to prescribe the amount and manner of application of

the protective covering to be placed over blasts situated on the perpendicular or diagonal side of a rock and blasts for ditch-work, electric conduits, sewers, gas and water mains, block-holes, man-holes, and pole-holes.

D. All blasting done in connection with excavation for or construction of buildings shall be done by means of standard type electric blasting machines and detonators. At least three minutes before firing a blast, the blaster shall give a warning thereof by causing a competent man, carrying a red flag, to be stationed at a reasonable distance from the blast at each avenue of approach or point of danger.

E. No person shall conduct blasting operations between the hours of 7 o'clock, p. m. and 7 o'clock, a. m., nor at any time on Sunday, except under authority of a special permit issued by the Inspector of Buildings.

F. The blasting of material contiguous to any structure shall be so conducted as not to cause damage thereto; and, to this end, walls or other supports shall be shored. Rotten or decomposed rock shall be removed only by the use of picks or bars. When blasting in the vicinity of a structure is unavoidable, only light face blasts, with short lines of resistance and small charges shall be used.

PART 2. SCAFFOLDING.

A. All scaffolds erected for use in the construction, repair, alteration, or removal of buildings shall be securely and safely supported. They also shall be of sufficient width and properly secured to insure the safety of persons working thereon or passing thereunder or near the same, and to prevent the falling thereof of any materials therefrom. The men in immediate charge of construction or demolition of a building shall be watchful that the temporary structures shall not be loaded to the danger point. Material shall not be piled on these structures except in small lots for immediate removal. Any workman or mechanic whose duties require him to use a scaffold may notify the Inspector of Buildings, in writing, calling attention to any defect or weakness which, in the employe's opinion renders the scaffold dangerous, and such communication shall not be made public; and the Inspector of Buildings shall inspect such scaffold and take action, if necessary, relative to the removal of dangerous or unsafe buildings.

B. When more than 10 feet above the ground, all mason's or bricklayer's scaffolding, platforms, whether swinging or supported, shall be provided with a toe board which shall run along the outer edge of the platform and be at least 6 inches high.

C. In addition to the requirements of the first paragraph of this part, all swinging scaffolds supported by block and fall, when more than 10 feet above the ground, shall be safely supported and protected. All hooks, poles, or other attachments on roofs, gutters, and so forth, from which the block and fall are suspended, shall be securely fastened by bolts or by tying back to the structure with ropes of sufficient strength. Each person working on a swinging stage of this kind shall be provided with a life line consisting of a rope of sufficient strength securely attached to workman and the structure above him. Not more than two men shall be allowed to work between any two falls by which staging is suspended.

D. Other types of scaffolds may be approved by the Inspector of Buildings.

PART 3. TEMPORARY FLOORS.

A. The party or parties having charge of the construction of any buildings more than three stories high shall provide sufficiently strong temporary floors built of scaffold planks laid close together or of other suitable materials, for the protection of life and limb of the workmen therein.

B. In a building having a structural steel frame a solid plank floor shall be maintained at the derrick or erecting floor over the portion of building under erection, with suitable planks not less than 2 inches thick, said flooring to extend not less than 2 feet over the outside of building. A similar floor shall be laid and maintained not less than two stories below the riveters for the protection of other workmen.

C. In a building having bearing walls and structural steel framing, a temporary floor shall be put in at every story before the riveting on the floor next above is started.

D. No floor shall be laid or poured before the framework below is lined up and riveted. No enclosing wall shall be laid up in any story before the floor centering of such story is in place, or a temporary

PART 4. OCCUPATION OF PUBLIC SPACE WITH BUILDING.

A. Persons engaged in the erection, alteration or repair of any building may occupy the public space with building materials and appliances for such reasonable period as the Inspector of Buildings shall decide, to be specified on permits issued by him, subject to the conditions stated in these regulations. Provided, that any such permit shall be revocable by the Inspectors of Building at any time when, in their judgment, traffic conditions or the public convenience may warrant such action.

B. Building materials must be stored on private property until needed at the building under alteration or repair. Old brick or building material taken from a building may be stacked in front of the site of said building for a time to be limited by the Inspector of Buildings in the Permit, when a new building wherein these materials will be used is to be erected on the said site.

C. The maximum area permitted to be occupied shall not extend beyond one third of the width of the roadway on streets where there are no railway tracks. On streets occupied by railway tracks the area occupied shall not be more than one half the distance from curb to nearest rail therefrom and in no case shall material be placed nearer than 5 feet from the outer rail of the track nearest the materials. The material shall be compactly stacked or arranged to occupy as little space as possible and at the same time secure vehicles and pedestrians from danger. Within 25 feet of the intersection of building lines at street corners such material shall not be piled higher than 4 feet.

D. Building material or earth from excavation may be temporarily deposited in a space one third the width of the alley, in alleys 15 feet or more in width, but subject to immediate removal when so ordered by the Inspector of Buildings. In all cases in alleys, the earth and materials shall be deposited in a manner to permit the free use of the alleys for the passage of vehicles, and to allow unobstructed egress from the property abutting on the alley.

E. The space allotted for materials may extend laterally in the roadway 20 feet each side of the lot on which the building is being erected when considered necessary by the Inspector of Buildings.

F. A width of not less than 6 feet must be kept clear on the sidewalks, but beyond such a passageway the sidewalk may be used under the same conditions as the roadway, provided no materials or rubbish is deposited or placed within 2 feet of any tree, and provided there is no vault under the sidewalk.

G. Dressing stone, cleaning brick or other materials within the parking line, if suitably inclosed by a tight fencing, will be permitted.

H. Each builder or owner occupying the roadway or sidewalk with materials shall exhibit a red light at night, placed in such a manner as to warn the public of the obstruction of the roadway and sidewalk and so as to show distinctly the clear passageway left in the roadway and sidewalk. When the space occupied by the materials extends for 20 or more feet along the curb, at least one light shall be exhibited at each end of the obstruction, hung clear of the obstruction on the side adjoining the carriage-way.

PART 5. REMOVAL OF EARTH AND RUBBISH.

A. Earth taken from excavation and rubbish taken from buildings must not be stored upon sidewalks, roadways or alleys, but must be taken directly from buildings and removed from day to day. When material or rubbish is removed through window or other opening in the upper stories of a building they shall be well wetted down and removed by means of tight chutes extending from the building to a point of discharge as directed or approved by the Inspector of Buildings.

PART 6. SIDEWALK PROTECTION.

A. Whenever a building or part thereof, within 5 feet of the building line, on an unparked street, is to be erected or raised to exceed three stories in height or whenever such a building more than three stories in height is to be demolished, the owner or the person doing or causing such work to be done, shall erect and maintain during such work a substantial roof over the sidewalk in front of said building and extending, as far as practicable, from the building line to the curb. Such roof shall remain in place as long as deemed necessary in the opinion of the Inspector of Buildings. Every such covering shall be not less than 8 feet in clear height above the sidewalk and shall be kept properly lighted at night to protect pedestrian traffic.

PART 7. EXCAVATIONS.

A. All excavations shall be protected by sheet piling or adequate shores, if necessary, by the persons causing the same to be made so that the sides shall not cave in and so that adjoining buildings and property shall not be damaged. All excavations shall be kept free from water and the building owner shall provide safe barricades.

B. When an excavation is to be made adjacent to and below the foundation of any existing wall, the building owner shall give the adjoining owner 10 days notice in writing, and at the same time file a copy of such notice with the Inspector of Buildings who will cause an inspection to be made. No excavation, except such exploratory excavation as may be required by the Inspector, shall be made prior to such inspection and the issue of permit in accordance thereof. Where such excavation is completed, the owner, architect or builder shall notify the Inspector of Buildings to that effect before proceeding with the construction of the foundations.

PART 8. PROTECTION AND RESTORATION OF ADJOINING PROPERTY.

Every portion of every structure in process of construction, alteration, repair or removal, and all neighboring property and structures or

any portion thereof affected by such process or by any excavation, shall be sufficiently supported and protected by the building owner during such process; and all necessary precautions for protection of life and limb shall be taken by said building owner and his agents, who shall, within a reasonable time, in the judgment of the Inspector of Buildings, restore the adjoining property and structures removed or damaged by him or them to as good condition as they were immediately prior to his or their operations.

PART 9. CONDEMNED MATERIALS.

All materials condemned by the Inspector of Buildings in, on or about any building under construction must be removed from the vicinity thereof within 48 hours from service or order of condemnation on the owner, the builder or any foreman or subcontractor engaged in or responsible for work on the premises. At the expiration of said 48 hours, if the condemned materials are not removed, the Inspector of Buildings shall revoke the permit for the building.

PART 10. TEMPORARY CONSTRUCTION.

A. Temporary Construction in Public Halls. A permit will be required for the erection of temporary construction in public halls or semi-public halls for the use of fairs, bazaars, or other forms of public entertainment, comprising booths, stands or scenic representations.

A plan of the proposed work shall be approved and filed with the Inspector of Buildings, and all construction shall be so located as to insure perfectly free access to all exits. All scenery, drapery, woodwork or other inflammable materials shall be treated with fire-protective paints or compounds approved by the Inspector of Buildings.

B. Temporary Supports. Every temporary support placed under any building or structure or any part thereof, during the erection, finishing, alteration, or repairing of such building, or structure or any part thereof shall be of sufficient strength safely to carry the load to be placed thereon. The Inspector of Buildings may order additional supports whenever he believes same to be necessary.

C. Temporary Observation Stands. No stand or structure for observation purposes shall be erected until the plans for same shall have been approved and permit issued by the Inspector of Buildings and no such stand shall be occupied until certified as safe by the Inspector of Buildings. In no case shall such a stand be placed upon the roof of any building.

PART 11. FENCES.

A. A party fence shall be a picket, wire or iron fence of open pattern, unless otherwise agreed upon by adjoining owners, and any repairs thereto shall be made with materials similar to those of which the fence is constructed; and Provided, That no party fence shall be erected under the authority of these regulations less than 4 feet or more than 7 feet in height. A front or rear fence shall not be more than 10 feet in height. The measurement shall be made from the surface of the ground next to the fence, and where the yards on the two sides of the fence differ in level, the measurement shall be made from the surface of the higher yard. Where lots are graded to conform with the street or alley grades abutting the property to be fenced, the measurement shall be made from the average grade on building line extending to party fences.

B. A fence, screen, trellis, or fence-wall, or structure not forming the inclosing wall of the building, may be erected entirely upon

the land of the building owner, with the approval of the Inspector of Buildings, to a height not exceeding 10 feet. If greater height than 10 feet is desired, the application for permit must be accompanied by the written consent of the adjoining owner, and be approved by the Mayor and Council.

C. Fences inclosing agricultural land or ground may be erected by agreement between adjoining owners, and are not subject to these regulations except as to maximum height.

PART 12. RADIO MASTS AND POLES.

A. No part of any radio equipment shall be erected in, on, or across any public street, avenue, road, highway, alley or other public space, and no wire in connection with, used or intended to be used for radio reception shall be, when erected or in course of erection either over or under or within 10 feet of any electric light or power wire.

B. No wire, mast, guy or support, for any wireless aerial shall be attached to or strung over any fire escape or fire ladder, nor shall any radio antennae which crosses the roof of any building be at an elevation of less than 7 feet above said roof.

C. No pole or masst, guy or support, for any wireless aerial shall be placed in any soil stack, vent pipe, or other plumbing appurtenance. No pole or mast on a roof of a building and exceeding 20 feet in height shall be erected without the approval of the Inspector of Buildings. When deemed necessary by the Inspector of Buildings, a sketch showing the dimensions and proposed method of securing such pole or mast shall be submitted.

PART 13. GASOLINE AND OIL STORAGE TANKS.

1. Oil burining apparatus.

2. Gasoline tanks and pumps must be installed according to the rules and regulations of The National Board of Fire Underwriters.

A. OIL BURNING APPARATUS APPLICATION.

This ordinance shall govern the installation and construction of oil burning devices and oil storage tanks used in connection therewith designed for heating stoves, ranges, hot-water heaters, steam boilers, hot-air furnaces or other devices where a quantity of oil in excess of twenty gallons is stored. This ordinance shall not apply in the case of manufacturing plants or where a licensed engineer is constantly on duty on the premises.

B. PERMITS REQUIRED.

It shall be unlawful for any person, firm or corporation governed by this ordinance to install any oil-burning devices or oil storage tanks to be used in connection therewith without first obtaining from the Inspector of Buildings permits authorizing such installations.

C. APPLICATION FOR PERMITS.

All persons, firms and corporations desiring to install oil-burning equipments or oil storage tanks to be used in connection therewith shall file application with the Town Clerk, and shall also file a plan showing the location of premises, the location and capacity of storage tanks and the location and type of burners, and shall pay to the Town Clerk a permit fee of \$2.00 and an inspection fee of \$2.00 for each installation.

D. ISSUANCE OF PERMITS.

The Inspector of Buildings shall investigate each such application and plan, and if said application and plan complies with the provisions of this ordinance he shall approve the issuance to the applicant of a permit by the Town Clerk for the installation of oil-burning equipment, but not

unless and until such applicant shall have paid the permit fee and furnished the bond hereinafter prescribed. If said application and plan is found not to comply with the provisions of this ordinance he shall refuse such a permit.

E. OIL-BURNING EQUIPMENT DEFINED.

An oil-burning equipment installed under this ordinance shall consist of all equipment connected to the burner and located within the building including internal auxiliary and external supply tanks, the provisions for filling and venting same, piping, wiring burners, and all accessories.

F. OIL DEFINED.

Oil used for fuel under these rules shall be a topped or distilled oil having a flash point of not less than 100° Fahrenheit closed cup. In determining the flash point either the Elliott, Abel, Abel-Pensky or Tagliabue Closed Testers shall be used, but the Tagliabue Closed Tester (standardized by the United States Bureau of Standards) shall be authoritative in case of dispute. In such cases the tests shall be made in accordance with the methods adopted by the American Society for Testing Materials.

G. TEST AND APPROVAL.

Oil burners installed under this ordinance shall be satisfactory oil burners, which have been tested and approved by testing laboratories with adequate facilities and properly equipped and qualified for testing such devices, and whose findings are subject to appeal to the United States Bureau of Standards. Evidence of such approval must be submitted to the Inspector of Buildings. The test and investigation shall cover arrangement of parts, suitability of materials, strength of parts, electrical controls, thermostatic arrangement, sensitiveness of automatic features, positiveness of ignition, safeguarding against flooding, possibilities of explosion, hydrostatic or oil-pressure testing of storage tank.

H. OIL FLOW.

Oil burners shall be equipped with mechanism of such mechanical or electrical construction that accumulation of unconsumed oil will automatically stop flow of oil to the burner. Burners shall be designed to prevent carbonization and shall be rigidly attached and supported.

I. AUTOMATIC IGNITION.

All burners subject to automatic ignition must be provided with permanent automatic device, either gas pilot or electric, or both, so designed that oil, upon being turned into the combustion chamber will immediately become ignited.

J. PIPING, VALVES AND UNIONS.

Standard, full weight, wrought iron, steel, or brass pipe with substantial fittings shall be used and shall be carefully protected against mechanical injury. Proper allowance shall be made for expansion and contraction, vibration and jarring. Supply pipe shall be not less than one-fourth inch in diameter iron pipe size, and when oil is pumped to the burner, return pipe shall be at least the same size. All connections shall be made perfectly tight and with well-filled joints. All unions shall be of approved type, having conically faced joint, obviating the use of packing or gaskets. Piping shall be as directly as practicable, so laid that if practicable the pipes are pitched back toward the storage tank without straps. Readily accessible valves shall be provided near each burner and close to the auxiliary tank in the pipe line to the burners. Valve shall be designed to close against

the supply and to prevent withdrawal of stem by continued operation of the handwheel. All threaded joints shall be made with litharge or other compounds.

K. ELECTRICAL INSTALLATION.

Electrical installation used in connection with oil-burning devices shall be installed in accordance with the requirements of and be inspected and approved by the Electrical Inspector.

L. VENTILATION.

No damper shall be permitted in the smoke pipe or chimney from the device heated that may entirely shut off the passage of fumes or gases. Ventilation shall be provided to prevent the accumulation of any trapped vapors below the combustion chamber where the grate bar area is entirely closed. Complete instructions in regard to care and operation of the oil-burning equipment shall be posted near apparatus. All cards of instruction must be posted at time of installation.

M. OIL STORAGE TANKS ABOVE GROUND—INSIDE OF BUILDINGS.

Oil storage tanks on inside of buildings shall be located in the lowest story, cellar or basement, and shall not exceed 275 gallons total capacity, except in cases where conditions make it impracticable to install tanks outside buildings, when it shall be permissible to install tanks of larger capacity inside buildings subject to regulations in Section N, and such tanks shall be placed on an incombustible floor. Inside or above ground auxiliary tanks shall be coated with a good quality of rust-resisting paint; the bottom surfaces preferably being coated with tar or asphaltum or the equivalent. Tanks shall have rigid and substantial incombustible supports and shall not be located less than five feet measured horizontally from any fire or flame. Glass gauging devices or any other, the breakage of which would permit the escape of oil, shall not be used. Oil must not be forced from tanks by air or water pressure. Fill pipe shall be wrought iron or steel not less than 1½ inches in diameter extending to the exterior side of building and provided with cap. Vent pipe shall not be less than ¼ inch in diameter and shall be provided with a return bend. Orifice of vent shall be provided with noncorrodable wire screen. Vent pipes shall terminate on exterior side of building not less than twelve feet above the grade line.

N. INSTALLATION UNDER GROUND OF OIL STORAGE TANKS IN EXCESS OF 275 GALLONS CAPACITY.

Oil storage tanks in excess of 275 gallons capacity shall be installed under ground, except in cases where conditions make it impossible to install tanks outside building, when it shall be permissible to install tanks in excess of 275 gallons capacity inside buildings and above ground subject to regulations contained in this section. Such underground tanks shall be placed at least twenty-four inches below the surface of the ground, or floor, or below twelve inches of earth and six inches of concrete or fire-brick. Tanks located within ten feet of any building having a basement or pit lower than the top of tank shall be incased in concrete six inches in thickness. Tanks in excess of 275 gallons capacity installed above ground shall be incased in nine inches of concrete or fire-brick, and six inches of tamped sand or loose earth. Fill and vent pipes for underground tanks inside buildings shall be as provided in Section M. Measuring devices on underground tanks inside buildings shall be floating type or a pipe not exceeding one inch in diameter, which shall extend to within one inch of bottom of tank with top end of pipe provided with a screw cap. Underground tanks shall be at least one inch lower at filler and vent end than at opposite end, for the purpose of permitting the removal of water and sediment by suction hose

through filler pipe. Underground storage tanks shall be thoroughly coated on the outside with tar, asphaltum or other suitable rust-resisting material, dependent upon the condition of the soil in which they are placed. Where soil contains corrosive substances, special protection may be required.

O. CONSTRUCTION OF TANKS.

Capacity gallons	Gauge	Min. thickness lbs. per. sq. ft. of material
1 to 285	16 gauge	2.50
286 to 560	14 gauge	3.125
561 to 1,100	12 gauge	4.375
1,101 to 4,000	7 gauge	7.50
4,001 to 12,000	¼ inch	10.00
12,000 to 20,000	5-16 inch	12.50
20,001 to 30,000	⅜ inch	15.00

For tanks of 1,000 gallons and more a tolerance of 10% in capacity may be allowed. All joints shall be riveted and caulked, brazed, welded or made tight by some equally satisfactory process. Shells of tanks shall be properly reinforced where connections are made. Tanks shall be made tight and tested at 5 pounds air pressure without showing leaks.

P. GRAVITY PRESSURE FEED FROM OUTSIDE TANK OF MORE THAN 275 GALLONS CAPACITY PROHIBITED.

No oil burner within a building shall be supplied by gravity nor pressure from outside storage tank of more than 275 gallons capacity. Where tanks of more than 275 gallons capacity are installed above the burner, the oil must be withdrawn by pump, or adequate provision shall be made to prevent siphoning or gravity flow in case of accident to the piping by the installation of an approved antisiphon device located above the level of the top of such storage tanks, or by the installation in the extending from the tank to the inside of the building must drain toward the tank. The suction pipe must extend to within two inches of the bottom of tank and must be provided with a control valve immediately inside the building. All pipe connections shall be made in the top of the tank. Underground piping shall be galvanized and connected to tank with a swing joint, combination fill and vent pipe shall be provided for tank with noncorrodible cone-shaped wire screen strainer. Fill opening shall be provided with hinged cover and be kept locked.

Q. PRESSURESTAT OR AUTOMATIC DEVICE.

All fuel oil burners used in connection with hot water and steam heating systems shall be equipped with approved automatic device to reduce or extinguish the fire in the event of undue pressure within the boiler.

R. ACETYLENE OR OTHER HIGHLY EXPLOSIVE GAS PROHIBITED.

The use of acetylene, or any other gas possessing a wider range of explosibility in admixture with air than coal gas, water gas or oil gas, is prohibited for use in the gas pilot of a fuel oil burner.

Article V. Projections on Public Property

PART 1. GENERAL CONDITIONS GOVERNING ISSUANCE OF PROJECTION PERMITS:

A. Projections are a privilege and cannot be claimed as a

right. These regulations are intended to show the maximum projections that will be allowed but proposed projections may be restricted or refused if the Inspector of Buildings considers such action best for the public interest.

B. Permits for projections must be accepted by the applicant with the understanding and agreement that any or all such projections shall be removed upon notice by the Inspector of Building.

C. See Inspector of Building for information concerning application for projection permits.

PART 2. PROJECTIONS ON STREETS TO BE WIDENED.

No projections shall be allowed on the parts of streets to be widened in conformity to the adopted and recorded highway extension plans until such parts of streets are so widened, except as follows: Where existing streets or avenues are widened, or new streets or avenues are laid out and opened, in conformity with the adopted and recorded highway extension plans in subdivisions existing at the time of record of such plans; and such widening or opening shall leave buildings or parts of buildings on such streets or avenues, such buildings will be allowed projections beyond the building line. The projections of such buildings will be limited in size to those allowed for porches but no limitations shall be placed upon the kind of projection unless the facade is structurally altered. In case the facade is structurally altered the projections shall conform in all respects to those described in the following regulations. Such buildings may be moved to any part of the lot on which they stand.

PART 3. MODIFICATION OF PROJECTION REGULATIONS:

When a building occupies the full frontage of any side of a square or is so far removed from adjacent buildings that, in the opinion of the Inspector modification in projections is required in the building regulations will not interfere with the adjacent buildings nor with the general public, such modification as may be approved by the Inspector of Buildings will be permitted; Provided, That the modification requested embellish the buildings and have not as their primary object the occupation of additional public space or the modification of interior arrangements; and that the modifications in no way interfere with the public interest.

PART 4. REGULATIONS APPLICABLE TO ALL PROJECTIONS:

A. No projection other than uncovered steps, cornices, bases, water tables or pilasters will be allowed on any street less than 60 feet in width and in any case a clear space from the outer edge of curb to outer face of all projections and steps will be preserved of not less than—

- Six feet on streets 40 feet but less than 50 feet wide;
- Eight feet on streets 50 feet but less than 60 feet wide;
- Ten feet on streets 60 feet to and including 80 feet wide;
- Twelve feet on streets over 80 feet and including 90 feet wide;
- Fifteen feet on streets more than 90 feet wide.

Wherever the application of the above limitations would result in encroachments within the sidewalk space as outlined by the existing general conditions on the square, the projections may be limited to the widths established by the said existing general conditions. The widths of all streets are to be taken from building line to building line.

B. No projection other than uncovered steps, cornices, bases, water tables or pilasters will be allowed on any building less than 16 feet in width.

C. No projections will be approved on parts of streets to be widened.

D. Water closets or urinals shall not be located in projections.

E. With the exception of steps, cornices, pilasters, areas, bases and water tables, a clear space of at least 8 inches shall be preserved between the party lines extended and the outer wall or sides of the projections. Steps and platforms, areas and other projections shall not extend over the party lines extended, and shall be constructed so that the removal of one house or its projections will not affect or damage the adjoining house or projections and will not interfere with the construction or reconstruction of projections or buildings on the adjoining property.

PART 5. REGULATIONS APPLICABLE TO SPECIFIC TYPES OF PROJECTIONS:

Only more restrictive requirements than those given above are given in the following regulations: Where the word "unlimited" is used with respect to a given dimension of height, width, or extent of projection, it is understood that such dimensions may be limited by the requirements of the preceding parts of this Section V.

A. Alley bridges may be permitted upon special approval of the Inspector of Buildings. In all cases they shall be at least 12 feet in the clear above the roadway, limited in width to the width of the door of the building opening thereon, and constructed throughout with incombustible materials.

B. Area. Open subsurface spaces adjacent to buildings for lighting, ventilation or entrance purposes to basements or cellars.

1. Width, unlimited.

2. Height of area enclosure shall be limited to the surface of the pavement, except coping and railing.

See Zoning.

4. Other requirements: Areas must be protected by strong metal railings not less than 42 inches nor more than 48 inches high. Proper protection by metal railings shall be provided where steps or platforms are built over areas. Basement or cellar steps in areas must be protected in the same way and have gates at top of steps unless otherwise protected.

Areas will not be permitted in alleys.

Areas located in unpaved parking may be protected by substantial metal gratings.

C. BALCONIES.

1. Width shall be restricted to such width as may be considered advisable in each case.

2. Height limited to railings 3 feet 6 inches above floor of balcony.

4. Balconies will not be permitted over public alleys.

D. BASES AND WATER TABLES:

1. Width unlimited.

2. Height limited to window sills of main story.

3. Projection limited to 4 inches beyond the building line, except 8" for pilaster bases.

E. BAY WINDOWS.

Projections for windows other than show windows. Rectangular, circular and polygonal windows which project from rooms or hallways and so form recesses not separated by partitions from the balance of the

rooms or halls and not intended for the display of goods or wares. Entrance doors may be placed in bay windows.

1. Width limited as follows:

a. Single projections: A single projection of 9 feet in width will be allowed for all buildings having a frontage of 16 feet or more, the allowable width of a single projection shall increase 6 inches for every foot of increase in the width of the buildings over 16 feet up to and including buildings 24 feet wide. For buildings 24 feet wide the maximum of a single projection shall be 13 feet, and the allowable width of a single projection for buildings over 24 feet in width shall increase 2 inches for every foot of increase in the width of the building over 24 feet.

b. Multiple projections: Double projections will not be allowed on buildings having a frontage less than 24 feet. On buildings 24 feet in width a double projection (i.e., two separate projections) will be allowed, the total width of both projections not to exceed 13 feet. The allowable width of double or multiple projections on buildings with a frontage exceeding 24 feet shall be increased 6 inches for each foot of increased frontage of such building over 24 feet.

c. The width of all projections will be measured at a distance of 1 foot from the building line. No bay-window less than 8 feet wide will be permitted.

b. Bay-window projections of buildings on interior lots shall not exceed the restricting lines drawn from the intersection of the party and building lines and making an angle of 45 degrees with the building line at such intersections. Bay-window projections of buildings at the corner of an alley shall not exceed the restricting lines drawn as described in the preceding sentence, considering the alley building line as a party line. Bay-window projections of buildings at the corner of two streets shall not exceed restricting lines as described above at the intersection of the party or alley building lines with the street building line; in bay-windows at the corner of the two streets the portion of the building beyond the building lines extended may be built upon but will not be counted in the width of projections on either front.

4. Bay-windows complying with the above regulations will be permitted on buildings in the residential district, including one or more street fronts of such buildings. No bay-window projection will be permitted on any building hereafter erected in the commercial and industrial districts. Where existing buildings in such districts are structurally altered on a side abutting on a street, bay-windows shall be removed from the side or sides of the building affected by such alteration.

F. COAL CHUTES:

In the residential district, coal chutes with circular wrought iron covers may be located within the space allowed for areas, provided, however, that no coal chute shall be located within the sidewalk space.

G. COLONNADES:

1. Width, unlimited.
2. Height, limited to two stories above grade, main floor of colonnade to be not more than 7 inches above grade.
3. Projection, limited to 6 feet where the parking is 17 feet or more in width. No colonnades will be allowed where parking is less than 17 feet in width.

H. CORNICES AND BELT COURSES:

1. Width, unlimited.
2. Height, unlimited.

I. LOADING PLATFORMS:

In the second commercial and industrial districts loading platforms projecting not more than 5 feet beyond the building line may be permitted upon special application and approval by the Building Inspector.

J. MARQUISES:

2. Height, not less than 8 feet in clear above sidewalks.

K. ORIEL WINDOWS:

Window construction, projecting from the face of the walls, when not supported from the ground.

Oriel windows shall conform with all the requirements given for bay windows, except that oriel windows less than 8 feet wide will be permitted. No oriel windows shall be constructed over a public alley.

L. SHOW WINDOWS: WINDOWS FOR THE DISPLAY OF MERCHANDISE.

1. Width, unlimited, except as to leaving 8 inches from party lines extended.

2. Show windows will be permitted only in the "D" Commercial and "E" Industrial Zones.

Q. Steps.

See Zoning.

1. Step projections will be allowed only in the residential districts.

R. Towers: Tower projections shall conform with all the requirements given for bay windows.

S. Vaults: Structures beneath parking, sidewalk, street or alley. The size and extent of vaults will be a matter of special determination in each case, as also the number and size of all openings into such vaults. All permits issued for the occupancy of public space by vaults are subject to revocation by the Inspector of Buildings at any time when the space as occupied is needed for public use or improvement.

Vaults may be allowed to project beyond the building line in alleys, but in no case nearer than 2½ feet to the center of the alley. Alley vaults shall have no opening in alley pavement.

Plans must be submitted showing the location and dimensions of the vault and all openings, the depth and proposed construction.

The application for a vault must be accompanied by a written agreement, upon the official blank for the purpose, signed by the owner of the abutting property, contracting to release and relinquish the vault space, and to remove free of expense to the Inspector of Buildings all structural parts of the vault when so ordered by the Inspector of Buildings.

In business districts, vaults shall not be used for public entrance to basements nor for the housing of boilers, plumbing fixtures or other mechanical appliances or equipment, but in connection with existing buildings may be used for the storage of movable goods, coal and fuel oil tanks.

If openings in the roofs of vaults are used for sidewalk elevators or for runways, they shall be located as near the curb as possible and equipped with heavy metal safety doors and frames.

The paving over vaults shall be laid according to the specifications approved by the Inspector of Buildings of Takoma Park. All such coverings shall be so constructed as to be flush with pavement, and have a roughened surface to provide security to persons passing over them. Pavements over vaults must be laid at the expense and risk of owner of abutting property, but not until a special permit or order has been issued by the Inspector of Buildings.

Vaults must be roofed over within a reasonable time or within the time fixed by the Inspector of Buildings. Whenever the grade is changed the vault must be changed and repaved, at the expense of the owner of abutting property, to comply with the new grades.

Vaults shall not be constructed so as to interfere with sewers, water pipes, manholes, gas pipes, lamp posts, trees or other public work or improvement, nor with any electric conduit carrying fire-alarms or police wires.

Owners of abutting property shall notify the public utility companies concerned where the removal or relocation of any underground construction is made necessary by the construction of a vault.

Article VI. Ventilation Requirements

PART 1. DWELLINGS, APARTMENTS, HOTELS, ETC.

A. Every room in every dwelling, apartment house, hotel, tenement, lodging house, hospital, asylum, sanitarium, institution for the infirm or buildings for any other similar purpose hereafter built, and in every building hereafter altered to be used as such, shall be not less than 8 feet in height in the clear in every story, except that in the attic it may be less than 8 feet high for one half the area of the room. Every room in every building or part thereof used for living purposes, having more than 40 square feet of floor space, except an apartment entrance vestibule not exceeding 120 square feet in area, shall be required to have at least one window or ventilating skylight, with area of openings not less than one-tenth of the floor area of room, to be lighted and ventilated from or by open air spaces or courts with an area throughout as required by the Zoning Regulations, or communicate directly through an open archway with a room provided with ventilation facilities as above, sufficient for the total area of both rooms. The above requirements shall not apply to those portions of basements which are not to be used for living purposes.

B. Enclosed kitchenettes in cabinets in apartments shall be provided with vent ducts of sufficient capacity to provide six air changes per hour.

C. Corridors of residential buildings shall be ventilated either by windows at ends of corridors or by a system of vent ducts of sufficient capacity to provide for six air changes per hour.

PART 2. GARAGES.

A. Subject to the Zoning Regulations garages may be located in the lower stories of any building, except schools, hospitals, sanitariums, asylums, institutions for the infirm and places of assemblage; and when so located shall be mechanically ventilated when the floor of the garage is below grade.

* * * * *

Fresh air inlets to such garages shall be equipped with reversible type disc fans which shall supply air from the outside to the garage. These fans shall be located near the ceiling and shall be of such capacity as will secure a sufficient supply of air to completely change the contents of the garage at least six times per hour. Each fan motor shall be equipped with a starting and speed regulating controller and an approved reversing switch. The reversing switch shall be so wired that motor cannot be reversed while running.

A system of galvanized iron vent ducts shall be arranged around the walls of such garages equipped with top and bottom vent inlets. Ducts shall be placed in each corner and along the walls not more than 25 feet apart. They shall be gathered together and connected to an approved exhaust fan. If necessary, additional ducts shall be placed in the center of the garage on piers or columns to adequately exhaust all parts of the garage. The fan shall have sufficient capacity to exhaust the entire cubic contents of the garage six times per hour. The fan motor shall be equipped with a remote control device which will permit the fan to be placed in operation from the garage.

The above requirement for ventilation shall not apply to Private Garages.

* * * * *

B. Automobile Service Stations.—Service stations shall be equipped with ventilating ducts for running in motors. The ducts shall consist of either steel or iron pipe. Such ducts shall be carried to the outside air and provided with proper connection for attaching flexible metal hose to machine exhaust. These ducts shall not be less than 3 inches internal diameter.

PART 3. STORES.

Stores with mezzanine galleries not provided with windows to outside air shall have ventilating ducts placed near the ceiling over the mezzanine space of sufficient area to provide six changes of air per hour based on the assumption that mezzanine is enclosed.

PART 4. WORK SHOPS AND WORK ROOMS.

Work shops, factories and manufacturing plants shall be so arranged as to provide ample ventilation. One-story factories may be provided with ventilating skylights or monitors, the total area of which shall be sufficient to permit of at least six changes of air per hour.

Work rooms 2,000 square feet or more in area, in addition to window ventilation, shall be provided with ventilating ducts connected to individual ventilators or group together in the attic space into one ventilator. The total area of the ducts shall provide for six changes of air per hour.

PART 5. SCHOOL ROOMS.

All school rooms, exceeding 350 square feet in area, shall be equipped with a system of ducts which shall ventilate the room either by gravity, suction or forced draft. The ventilating system shall be designed on the basis of 20 cubic feet of air per minute per pupil.

Story height in such school rooms shall not be less than 11 feet in the clear.

The total glass area of outside windows or skylights in each classroom, recitation or study room shall not be less than 20 per cent of the floor area of such room. The above regulation shall govern for all new buildings. Conversion of existing buildings to school purposes shall be subject to the special approval of the Inspector of Buildings.

PART 6. THEATERS, HALLS AND PLACES OF ASSEMBLAGE.

Theaters, halls and places of assemblage having a seating capacity of more than 300 shall be equipped with mechanical ventilating apparatus which will insure 20 cubic feet of air per minute per person, based on the seating capacity. The type of apparatus, sizes of fans, etc., must be satisfactory to the Inspector of Buildings.

PART 7. TOILET ROOMS.

See Inspector of Buildings.

Article VII. Means of Egress and Special Requirements for Occupancies

PART 1. TYPES OF EXITS.

A. INTERIOR STAIRS:

1. Requirements Apply to all Types of Required Interior Stairs.

a. General Requirements: The following requirements apply to all interior stairways constituting required means of egress. If there are additional stairways not constituting required means of egress, such additional stairways shall comply with the requirements as far as enclosures are concerned, except in special cases where open stairs or unprotected vertical openings are specially permitted by occupancy requirements. Where additional stairways do not conform in all respects, such as intercommunicating stairways not leading to the open air at the street, they shall bear signs indicating that they are not exits.

b. Arrangement and Access: Stairways and intermediate landings shall continue with no decrease in width along the direction of exit travel, except that existing stairs with decrease in width may be accepted subject to the provision that the narrowest point shall determine the rated width for all floors above that point. All stairways shall lead by a direct line of travel to the street floor and open directly on the street or alley or to an open-air or fire-resistive passage leading to the street or court connected with the street, except as this requirement may be modified in special cases by the various occupancy egress requirements. Such fire-resistive passage shall not be less than 8 feet in height. The full effective width of stairs shall be maintained throughout all passageways or other paths of travel to the court. When the width of such court or passage is not determined by special occupancy egress requirements, it shall be equal to the required aggregate width of all the exits discharged through it. Where there is communication on the street floor direct from the stair enclosure, or fire-resistive passage, to the main floor area, such openings shall be protected by self-closing fire doors.

All stairs which may be used for exit purposes shall be so arranged as to make clear the direction of egress to the street. Stairs and other exits shall be so located that they are readily accessible and visible to the occupants of the building. Where arrangements are such that the location of stairs is not conspicuous to occupants in every part of the building, adequate signs shall be provided to indicate stairways and the direction of travel to reach them.

c. Treads, Risers and Landings: All stairs shall have treads and risers of uniform width and height throughout each flight. Where material of stair treads and landings is such as to involve danger of slipping, nonslip material shall be provided on tread surface. No arrangement of treads known as winders shall be permitted in required new stairways, unless specifically allowed by the occupancy egress requirements.

When stairs return directly on themselves, a landing shall be provided with length at least equal to the full width of both flights, and with width at least equal to the width of one flight, provided, however, that the corners of the landings may be cut off at an angle, or rounded.

In no case shall any door at any point in its swing reduce the width of stair landing to less than 36 inches, nor when opened interfere with the full use of the stairs.

d. Railings: All stairs shall have enclosing walls or well secured balustrades or guards on both sides, and shall have a handrail on at least one side. Any stairway over 66 inches in width shall be provided with one or more continuous intermediate handrails substantially supported; the number and positions of intermediate handrails to be such that there will be not more than 66 inches between adjacent handrails and not less than 44 inches. The vertical distance from a stair nosing to the top handrail shall be not less than 2 feet 7 inches or more than 3 feet.

e. Enclosures: All stairways, except where in special cases open stairways are specifically permitted by occupancy egress requirements, shall be enclosed. Stairs other than required exit stairways need not be enclosed when only one story in height.

f. Lighting: Every stairway or other exit and the corridors and passageways appurtenant thereto shall be provided with an adequate system of lighting. There shall be at least one light at every floor landing, within the stair enclosure, and a red light over every door leading to an exit, or from an exit to the street.

g. Fire-Resistive Requirements:

1. See Article II, Part 1, A and B for buildings in which stairs are required to be of fire-resistive construction.

2. See Article II, Part 2, C, for the construction of stairs and enclosures for which fire resistive construction is required.

3. See Article II, Part 3, D, for the construction of stairs and enclosures for which fire-resistive construction is not required, and VII, Part 3, E, 6, for fire-stopping of stairs of non-fire-resistive construction.

h. Unit of Width: The unit of width for all required stairs shall be 22 inches. Credit of 50 per cent of a unit will be allowed for 12 inches or more of width added to two or more full 22-inch units of stairway width.

2. Classification of Interior Stairs:

In addition to the following requirements, interior stairs shall conform to all the requirements for interior stairs given in Article VII, Part A-1.

a. Class A Stairs: Stairs shall be at least 44 inches wide. All such width shall be clear of all obstructions except that handrails attached to wall may project not more than 3½ inches at each side within the required width. There shall be a handrail on each side of the stairs. If newels project above tops of rails, a clear width of at least 44 inches shall be provided between the face of the wall or newel opposite. Stairways which are over 66 inches wide shall have one or more double intermediate handrails with end newel posts at least 5 feet 6 inches high. The rise of stairs shall be not more than 7 inches, and the tread exclusive of the nosings shall be not less than 10½ inches; all treads and stair landings shall have a non-slip surface and all treads shall have nosing projections not less than 1 inch. No run of stairs shall consist of more than 16 risers nor less than 6 risers between platforms without level landings, and the length and width of such landing shall not be less than the width of the stairs. Swinging doors only shall be used in connection with Class A stairs.

b. Class B Stairs: Stairs shall be at least 44 inches wide. All such width shall be clear of all obstructions except that handrails attached to walls may project not more than 3½ inches at each side within the required width. If newels project above top of rails, a clear width of at least 44 inches shall be provided between the face of the newel and the face of the wall or newel opposite. The rise of stairs shall be not more than 7

inches, and the tread exclusive of the nosing not less than 9½ inches. Stairways exceeding 12 feet in vertical height shall have an intermediate landing of at least 4 feet in length.

c. Class C Stairs:

1. The maximum pitch allowed for Class C stairs will be 45 degrees. Stairs shall be at least 36 inches wide clear of all obstructions other than handrails. The minimum clear width inside handrails shall be 32 inches. The treads, exclusive of nosings, shall be not less than 9 inches wide.

2. In the alteration of existing buildings, stairs having winders may be accepted as Class C stairs subject to a reduction of 25 per cent in capacity and stairs less than 36 inches but not less than 30 inches wide may be accepted subject to a reduction of 25 per cent in capacity.

d. Exterior Enclosed Stairs (Smokeproof Tower):

1. Exterior enclosed stairs or smokeproof towers shall be considered the equivalent of interior stairs.

2. Access shall be provided to the stairway from every story of the building by outside balconies or by vestibules within the walls of the building, but open at least on one side. Every such balcony or vestibule shall have an unobstructed width at least equal to the required stair width. They shall open upon a street, alley, or other open space, or if upon an enclosed court it shall be not less than 400 square feet in horizontal area and open at the top. Railings shall be constructed of incombustible material and shall be not less than 4 feet high. All windows or other wall openings within 10 feet of balconies shall be protected by self-closing fire doors or windows.

3. Access to the balcony or vestibule from the building shall be by doorways at least 40 inches wide. Doorways from the building to the balcony or vestibule and from the balcony or vestibule to the tower shall be provided with a self-enclosing fire door swinging with the exit travel. If doors are provided with locks or latches, these shall be of a visible type requiring no keys to open them. A clear wired glass panel not exceeding 720 square inches in area shall be provided in all doors opening into the stair shaft.

4. The level of the balcony or vestibule floor shall be below the sill level by an amount not less than 4 or more than 8 inches.

B. EXTERIOR STAIRS:

1. Requirements Apply to all Types of Required Exterior Stairs:

a. Limitations in Use: Outside stairs shall only be permitted as required means of egress under the following conditions:

1. In alterations to existing buildings not over five stories in height.

2. In new buildings where specifically allowed by occupancy egress requirements, Article VII, Part 2.

b. Location and Arrangement:

1. Stairs shall be protected against fire in the building, or smoke therefrom. Openings within 5 feet of either side of the stairs shall have approved metal frames and be glazed with wire glass. Sash shall be self-closing and held open by fusible link.

2. Outside stairs shall be so located and protected that they will lead by a safe path of travel to the street.

3. In all cases where outside stairs or fire escapes do not extend to the roof, a permanent ladder shall lead to the roof.

c. Lighting:

1. Red indicating lights shall be provided at all exits leading to outside stairs which may be used during the night, and lights shall be kept burning during the night if building is occupied.

2. Signs having white letters not less than 5 inches high on a red field, indicating location of outside stairs, shall be provided not only on or near windows or doors leading to stairs, but also at other points in building whenever necessary to indicate direction of egress.

3. Outside stairs and the corridors and passageways appurtenant thereto shall be provided with an adequate system, consisting of not less than one light at each landing.

d. Maintenance and Painting: Exterior stairs shall be painted before and after erection. Stairs shall be inspected at least annually, and shall be scraped and painted as often as necessary to maintain them in proper condition at all times. Stairs shall be kept clear of all incumbrances and be promptly cleaned after snow or ice has accumulated upon them. No obstruction such as telephone or lighting wires shall be permitted on or near stairs. Electric wires shall not be directly over or within 5 feet of outside stairs or balconies unless such wires are enclosed in rigid conduit.

2. Classification of Exterior Stairs:

a. Exterior Screened Stairway:

1. Stairs: Stairs shall be built permanently to the ground, no swinging section being permitted. The stairs shall conform with the requirements of Class B interior stairs, as to width of stairs, rise and tread.

2. Balconies:

a. Minimum clear unobstructed width of platform and passageways, connecting flights of stairs, shall be not less than the width of stairs.

b. Landings at head and foot of stairs shall have minimum dimension not less than the required width of the stairs and shall extend at least 4 inches beyond the jambs of any exit opening.

c. The maximum vertical distance between platforms or landings shall not exceed 12 feet.

3. Headroom: The minimum headroom at all points on balconies and stairs shall be 7 feet, measured vertically.

4. Roofs, Enclosures and Rails: Enclosures for balconies and stairs shall be provided not less than 5 feet, 10 inches high; for stair, enclosures shall be measured vertically from nosings. They shall be of solid, slatted or grille construction. Roofs shall be provided and the eaves of roof shall project at least 6 inches beyond enclosure.

5. Access:

a. Doors or approved casement windows, not less than 30 inches wide and 6 feet, 6 inches high swinging with the exit travel, shall be used, provided that the aggregate width of doors or casement windows leading from any story to an outside stair is at least equal to the width of the outside stair or balcony to which they give access.

b. Where doors or casement windows lead to outside balconies, the level of the balcony floor shall be below the silo level by an amount approximately equal to but not more than one step of the stairs.

6. Construction: Exterior screened stairways shall be built of incombustible materials and all supporting bars which are in tension and are fastened directly to the building, shall pass through the wall and be securely fastened on the opposite side or they shall be securely fastened to the framework of the building.

b. Exterior Fire Escapes:

1. Stairs: The minimum clear width of stairways and stair

landings, or of passageways leading from stairway to stairway, shall be 20 inches. The pitch of stationary and of swinging stairs, when down, shall not exceed 60 degrees. Rise shall not exceed 12 inches. Treads shall not be less than 5 inches exclusive of nosings. In schools, hospitals and theaters, exterior fire escapes shall be built permanently to the ground. In other cases, stairs may terminate in a swinging stairway, to which the following requirements shall apply: The swing section of stairs shall be at least equal in width to that of the stairs above; railings shall be provided; if distance from lowest platform to ground exceeds 20 feet an intermediate balcony not more than 14 feet from the ground nor less than 7 feet in the clear underneath shall be provided, with width not less than that of the stairs and length not less than 3 feet. Drop ladder to be at least 12 above the grade when located near an alley

2. Balconies: Minimum clear unobstructed width of platform and passageways connecting flights of stairs shall be not less than the width of the stairs. The maximum vertical distance between platforms or landings shall not exceed 14 feet.

3. Railings: Railings shall not be less than 32 inches high.

4. Access:

a. Access shall be provided by one of the following methods: Doors flush with the floor, not less than 2 feet 6 inches wide; doors or casement windows having sills above the floor; double hung windows, not less than 2 feet 6 inches wide, 8 feet high, window sill not less than 18 inches or more than 30 inches from floor.

b. Where sill is over 18 inches above floor, one or more steps of equal height shall be provided, so that top step is not less than 12 inches or more than 18 inches below sill. Steps shall be full length of window opening and not less than 9 inches wide, exclusive of nosings, and as nearly $7\frac{3}{4}$ inches high as may be practicable.

5. Construction:

a. Railings: Standards to be 1-inch pipe, two cross rails fastened with $\frac{1}{2}$ -inch bolt through wall and secured with 3-inch x $\frac{3}{8}$ -inch washer and nut

b. Platform: Frame $1\frac{3}{4}$ inches by $\frac{3}{8}$ -inch bars, intermediate bars $1\frac{1}{2}$ inches by $\frac{3}{8}$ -inch not over 27 inches apart. Floor fittings of $\frac{1}{2}$ -inch round bars set $1\frac{1}{2}$ inches on centers and securely riveted to frame. Frame to be securely bolted to brackets.

c. Stairs to be securely fastened to platform. Side bars to be 3 inches by $\frac{3}{8}$ -inch, steps 5 inches by $\frac{1}{4}$ -inch, each step to be fastened with two $\frac{3}{8}$ -inch machine bolts or rivets in each side. Hand rails on stairs to be of 1-inch pipe.

Roof Ladder: Side bars to be 2 inches by $\frac{3}{8}$ -inch, steps $\frac{5}{8}$ -inch round rods 12 inches o. c. The roof ladder shall be fastened to roof with two flat braces 18 inches long, ladder to be of type known as firemen's gooseneck ladder and to extend to a height of at least 3 feet above the roof.

e. Drop Ladder: Side bars to be 2 inches by $\frac{3}{8}$ -inch, steps $\frac{5}{8}$ -inch round rods 12 inches o. c. Handrail on each side to be of $\frac{3}{4}$ -inch pipe. Yoke to be counterbalanced on 5-16-inch bronze or copper cable and arranged to move easily.

f. Vertical drop ladders to be counterbalanced as above and guides arranged to keep ladder close into edge of platform and prevent swaying. This style of ladder is only to be used where swinging drop ladder cannot be used.

g. Brackets: To be of 2-inch by $\frac{1}{2}$ -inch bars and fastened with 1-inch bolts through wall, secured with 5-inch by $\frac{1}{4}$ -inch washer and nut.

Brackets to be not less than 22 inches in height and project full width of platform, and be spaced not to exceed 5 feet o. c.

h. Where it is desired to make an ornamental fire-escape, the above sizes and shapes of material may be varied but the equivalent strength of the sections used shall in no case be less than that of those specified above

C. RAMPS:

1. Ramps shall comply with all requirements for stairways as to width, enclosures, rails, landings, lighting, insofar as applicable.

2. Where stairs of the several classes are specified, ramps having a slope not greater than 1 foot in 10 may be substituted, except as this requirement may be modified by occupancy egress requirements.

3. Ramps shall be surfaced with suitable non-slip material.

D. DOORS:

1. All required exit doors shall swing with the direction of exit travel. Sliding doors and rolling shutters are prohibited on required exits. No door shall open immediately on a flight of stairs, but a landing at least the width of the door shall be provided between stairs and door. There shall be no obstruction to doors on stairs or landings. In no case shall any door at any point in its swing reduce the width of stair landing to less than 36 inches, nor when open interfere with the full use of the stairs. Single doors swinging into stair enclosures shall swing with the travel down stairs from upper floors, or up from basements. Doors from stairways to outside the building shall swing out or be double-acting, and be so arranged as not to restrict the effective width of the stairs.

2. All doors used in connection with means of egress shall be so arranged as to be always readily opened from the side from which egress is made. Locks, where allowed shall not require key to operate from the inside. In factory, merchantile, theater, school and office buildings and in other buildings as required by occupancy egress requirements doors shall be kept continually unlocked while building are occupied. Where doors are required to be kept unlocked and for operating reasons it is undesirable to allow unrestricted communication between building and outside, doors may be provided with alarms.

3. Units of doorway width shall be 22 inches, except that for doorways used in connection with existing Class B and Class C stairways 18 inches may be taken as one unit. The minimum width of any doorway shall be 30 inches. Doorway openings less than two full units wide in the clear shall be rated as not more than one unit. Credit of 50 per cent of a unit shall be allowed for 12 inches more of width added to two or more full 22-inch units of doorway width.

4. Revolving Doors: Revolving doors are prohibited on required exits, except that approved collapsible revolving door not located at foot of stairs may be used between street floor and street where specifically permitted by occupancy egress requirements. Where used, revolving doors shall not constitute more than 50 per cent of the required door width. Each revolving door shall receive credit as constituting not more than one unit, 22 inches, of exit width, provided such revolving doors are serving as required exits.

5. See Article II, 2, D, for requirements for fire-resistive doors.

E. AISLES AND CORRIDORS:

1. Safe and continuous passageways, aisles or corridors lead-

ing directly to every exit and so arranged as to be conveniently accessible to every occupant shall be maintained at all times.

2. Widths of passageways, aisles or corridors shall be measured in the clear, at their narrowest points. Doors swinging into passageways shall not restrict the effective width at any point during their swing to less than the minimum widths hereafter specified. The minimum width of any passageway shall be 3 feet in the clear.

3. The aggregate width of passageways, aisles or corridors, leading to any exit shall be at least equal to the required width of the exit. Where all travel to any exit is along the passageway, such passageway shall have a width at least equal to the required width of the exit; where several passageways lead to an exit, each shall have a width suitable for the travel which it may be called on to accommodate.

4. See Article II, 2, C, for requirements for fire-resistive corridors and Article II, 3, D, for requirements for non-fire-resistive corridors.

Part 2---Occupancy Requirements

A. RESIDENTIAL BUILDINGS.

Residential buildings shall be construed to include flats, apartment houses, clubs, hotels, tenements, lodging or boarding houses, hospitals, sanitariums, asylums, dormitories, institutions for the infirm, boarding schools and all similar buildings in which are provided sleeping accommodations, other than for janitor or watchman. All private residences and two-family flats shall be exempt from requirements of this Part 2 of Article VII.

1. Means of Egress.

a. Type of Required Stairs.

In all new residential buildings enclosed stairs will be required as fire escapes.

Required stairs shall consist of not less than one Class B stairs and one Class C stairs for new buildings and not less than two Class C stairs in the alterations to existing buildings. Where more than two stairs are required one of these may be a Class C stairway, but all others shall be Class B stairways. No exterior stairs will be allowed in new buildings. In alterations to existing buildings exterior stairs or fire escapes may be used, but there shall be at least one Class C interior stairs.

b. Maximum Distance to Nearest Exit.

The maximum distance of the entrance door of any room or apartment from the nearest exit stairway shall be not more than 125 feet in building having any part of non-resistive construction, and 150 feet in buildings of completely fire-resistive construction.

c. Minimum Number and Location of Exits.

Not less than two means of exit shall be provided on every floor containing bedrooms or dormitories. Exits shall be so located that every apartment, room or dormitory shall have access to not less than two means of exit without passing through any other apartment, room or dormitory; provided, however, that apartments containing more than one room shall be deemed to comply with this requirement if any one room of such apartment has access to two means of exit without passing through any other apartment, room or dormitory.

d. Rules for Determining Number and Width of Exits.

1. The population of residential buildings, upon which egress requirements will be based shall be computed as follows: One person for every 100 square feet of floor area of such dormitory or ward.

2. The minimum aggregate width of all required means of exit shall be computed on the basis of 15 persons per floor per unit of width of such required means of exit.

e. Exceptions.

1. Apartment houses not more than three stories in height containing not more than one apartment per floor and equipped with exterior fire-escapes or with a Class C stairway shall be exempt from all other requirements.

2. Residential buildings containing not more than thirty occupants per floor may be provided with two Class C stairs in place of one Class B and one Class C stairs.

3. Apartment houses not more than three stories in height so arranged that groups of one to five apartments per floor open directly, without any intervening hall or corridor, upon a Class B exit stairway, shall be exempt from the requirements that there shall be not less than two means of exit on every floor containing bedrooms and that the occupants of each apartment shall have access to two required means of exit; provided, that such stairway is of fire-resistive construction, that the enclosure consists of masonry walls and kalamein doors or other metal doors equally fire resistive.

f. Corridors.

The minimum width of corridors in apartment houses shall be 5 feet in the clear for corridors serving more than three apartments.

2. Fire Fighting Equipment.

Near the center of the main corridors and halls, standpipes at least two inches in diameter shall be placed with satisfactory connections to the city water service. In each hallway on each floor and in the public kitchen shall be placed at least one three-gallon fire extinguisher. The maximum distance to the nearest fire extinguisher shall in no case be greater than 125 feet. In buildings of complete fire-resistive construction and in buildings having not more than five apartments per floor, standpipes will not be required, provided fire extinguishers are installed as required above. One eight-inch alarm gong shall be placed near the center of each hallway or corridor on each floor. Gongs are to be operated from automatic striking places as follows: One near the front door; one at the stairs on each floor; one in the office or janitor's room; and one in the public kitchen. Gongs shall be placed on one circuit and shall operate simultaneously from all stations. All operating switches are to be protected by glass. The alarm gong system shall be supplied with an approved type of dry-cell battery, which supplies current for no other purpose and which shall be renewed at least once a year. Telephone will not be considered as a substitute for alarm gongs.

B. OFFICE BUILDINGS.

1. Means of Egress.

a. Type of Required Stairs.

All floors having an area of less than 5,000 square feet may be served by type C stairs. Where the floor area exceeds 5,000 square feet type B stairs shall be used throughout.

b. Maximum Distance to Nearest Exit.

The maximum distance of the entrance door of any office to the nearest exit stairway shall be not more than 175 feet.

c. Minimum Number and Location of Required Stairs.

There shall be at least one required stairway, located so that it will be accessible to the occupants of any office or suite of offices without passing through other offices. Where the required width of such stairway exceeds three units of width, at least two stairways shall be provided.

d. Rules for Determining Number and Width of Stairs.

The minimum aggregate width of all required means of exit shall be computed on the basis of one unit of width for each 4,000 square feet or fraction thereof, of floor area, exclusive of halls, toilets, elevator and stair enclosures, of the floor of largest area of those served by the exits in question. In the case of buildings having floors of different areas the stair widths may be increased from floor to floor to take care of the increased area of the lower floors.

2. Fire Fighting Equipment.

Near the center of the main corridors and halls, standpipes at least two inches in diameter shall be placed with satisfactory connections to the city water service. In each hallway on each floor there shall be placed at least one three-gallon fire extinguisher. In buildings of non-fire-resistive construction there shall be one eight-inch alarm gong placed near the center of each hallway or corridor on each floor. All operating switches shall be protected by glass. The alarm gong system shall be supplied with an approved type of dry-cell battery, which supplies current for no other purpose and which shall be renewed at least once a year. Telephones will not be considered as a substitute for alarm gongs.

C. STORES.

1. Means of Egress.

a. Type of Required Means of Egress.

In all new buildings enclosed stairs will be required as fire-escapes.

Required stairs for stores shall be of Class C type for any floor having less than 5,000 square feet in area. There shall be at least one Class B stairs for floors 5,000 to 10,000 square feet in area. All required stairs for floors over 10,000 square feet in area shall be of Class B type. In alterations to existing buildings, exterior stairs or fire escapes may be used for not to exceed 50 per cent of the required stairs, but there shall be at least one Class C interior stairs. The required stairway in stores not more than 5,000 square feet in area and not more than four stories in height need not be enclosed on the first floor, provided the entire building is of fire-resistive construction.

Mezzanine or store balconies may be connected with the main floor by an open stairway, provided the total area of such mezzanine or balcony does not exceed one-fifth the area of the building.

Revolving doors will be permitted on the main floor of store buildings when complying with the requirements of Article VII, 1, D, 4.

b. Maximum Distance to Nearest Exit.

The maximum distance from any point to the nearest exit stairway shall not exceed 125 feet for buildings having any part of non-fire-resistive construction and 150 feet for buildings of fire-resistive construction.

c. Minimum Number and Location of Exits.

There shall be one required exit stairway for all stores less than 5,000 square feet in area and not more than four stories in height. Not less than two means of exit shall be provided in every store 5,000 square feet or more in area, or more than four stories in height.

d. Rules for Determining Number and Width of Exits.

1. The minimum aggregate width of all required means of egress shall be computed as described in the following paragraphs. By "gross floor area" is meant the total floor area, including halls, walls, stair enclosures, etc., of the largest floor served by the exits the width of which is being computed. In the case of buildings having floors of different areas, the stair widths may be increased from floor to floor to take care of the increased area of the lower floors.

a. For stores of non-fire-resistive construction with automatic sprinklers, one unit of required stair width for each 3,000 square feet or fraction thereof of gross floor area, per floor.

c. For stores of completely fire-resistive construction without automatic sprinklers, one unit of required stair width for each 3,000 square feet or fraction thereof of gross floor area per floor.

d. For stores of completely fire-resistive construction with automatic sprinklers, one unit of required stair width for each 4,000 square feet or fraction thereof of gross floor area, per floor.

2. Automatic sprinkler systems referred to in the preceding paragraphs shall be of a type approved by the National Board of Fire Underwriters.

2. Fire-resistive Requirements.

See Article VII for fire-resistive requirements other than those listed below.

The floor area of any one story or portion of story enclosed by fire-resistive dividing walls in any store building of non-fire-resistive construction shall not exceed 5,000 square feet without an approved sprinkler system, and shall not exceed 15,000 square feet when provided with an approved sprinkler system.

The floor area of any one story or portion of story enclosed by fire-resistive dividing walls of any building of fire-resistive construction shall not exceed 25,000 square feet without an approved sprinkler system and shall not exceed 50,000 square feet when provided with an approved sprinkler system.

Where any such floor is divided by fire walls or fire-resistive dividing walls, each subdivision of such floors shall be provided with required stairs, aisles and exits as required for separate and distinct buildings.

Openings may be provided at each floor in these fire or division walls which shall have fitted thereto approved shutters or fire-resistive doors.

3. Fire Fighting Equipment.

In stores having a floor area in excess of 5,000 square feet, there shall be at least one 3-inch standpipe to each 5,000 square feet of floor area with hose connections, with hose on reels or racks, with 60 feet of hose at each outlet, complete and ready for use. All stores shall have at least one 3-gallon fire extinguisher for each story and at least one for each 10,000 square feet of floor area.

D. SCHOOLS, ACADEMIES, SEMINARIES, COLLEGES.**1. Means of Egress.****a. Type of Required Stairs.**

In all new buildings enclosed stairs will be required as fire-escapes.

All required stairs shall be Class A interior stairs. Exterior stairs not more than three stories in height and not more than 5,000 square feet in area.

b. Maximum Distance to Nearest Exit.

The maximum distance from any point to the nearest exit stairway shall be not more than 150 feet.

c. Minimum Number and Location of Exits.

One stairway will be required where the seating capacity above the first floor does not exceed 100, and at least two stairways will be required where the seating capacity above the first floor exceeds 100.

d. Rules for Determining Number and Width of Exits.

1. For seating capacity, see Definitions, Article VII, 2, G, D.

2. All exit stairs and corridors shall be computed on the basis of 50 persons per unit of width per floor.

e. Aisles.

Aisles in classrooms, recitation rooms or study rooms shall be aisle shall be less than 2 feet 6 inches at its narrowest point.

f. Assembly Halls.

Assembly halls in school buildings shall comply with all the requirements of places of assemblage, provided, that in no case shall an assembly hall having a seating capacity exceeding 300 be placed above the main floor.

E. FACTORIES AND WORKSHOPS.**1. Means of Egress.****a. Type of Required Stairs.**

In all new buildings enclosed stairs will be required as fire-

Required stairs shall be of Class B type for new buildings, but may be of Class C type for existing buildings. No exterior stairs will be allowed in new buildings. In existing buildings not more than fire stories in height exterior stairs or fire-escapes may be used, but there shall be at least one Class C interior stairs.

b. Maximum Distance to Nearest Exit.

No portion of the building shall be more than 150 feet, along the line of travel, from the nearest exit stairway in building of non-fire-resistive construction and 175 feet in buildings of fire-resistive construction.

c. Minimum Number and Location of Exits.

Any floor having less than 5,000 square feet of area shall be provided with at least one means of exit; any floor having over 5,000 square feet of area shall be provided with at least two means of exit.

d. Rules for Determining Number and Width of Exits.

1. The minimum aggregate width of all required means of exit for buildings of non-fire-resistive construction shall be computed on the basis of one unit of width for each 4,000 square feet or fraction thereof of gross floor area of the floor of largest area served by the exits in question.

2. The minimum aggregate width of all required means of exit for buildings of fire-resistive construction shall be computed on the basis

of one unit of width for each 7,000 square feet or fraction thereof of gross floor area of the floor of largest area served by the exits in question.

3. In the case of buildings having floors of different areas the stair widths may be increased from floor to floor to take care of the increased area of the lower floors.

F. GARAGES.

1. Minimum Number and Location of Exits.

Any floor having an area of less than 20,000 square feet shall have at least one Class C stairway.

Any floor having an area of more than 20,000 square feet shall have at least two Class C stairs, except that garages having ramps need have only one required stairway.

Ramps may be built without enclosures in public garages.

G. THEATERS, HALLS, CHURCHES, ROOF GARDENS, BALL ROOMS AND OTHER PLACES OF ASSEMBLAGE.

See Section 1, Part 12, for definition of theater, seating capacity, etc. Entrance stairs shall refer to those which are normally used by the public in gaining access to all tiers of the auditorium, and emergency stairs shall refer to those which are used by the public in case of emergency. The

1. Requirements for means of egress applicable to all theaters, halls, churches, roof gardens, ball rooms and places of assemblage. See G, 2, G, 3 and G, 4, if the building has a stage block equipped for movable scenery.

a. Types of Exits.

See Article VII, Part 1, for types of exits. All requirements of Article VI, Part 1, shall apply unless otherwise specially mentioned.

b. Exit Corridors and Passages.

No corridor or passageway shall be less than 5 feet in width, nor less than 8 feet in height. No two exit corridors shall meet at right angles, but at their junction shall take a common direction and the continuing corridor shall be equal in width to the required width of the two exit corridors combined. Radiators in exit passages shall be placed in recesses so as not to contract the width of the exit. No ticket booth shall diminish the required width of the exit passages. No sign or billboard, or anything forming an obstruction, shall be placed in the lobbies; provided, however, that signs and billboards may be placed flat against the walls so as not to obstruct free egress.

c. Aisles.

Aisles shall be not less than 3 feet wide where they begin and shall be increased in width toward the exit in a ratio of 3 inches to 10 running feet. Other aisles with seats on one side only shall be not less than two-thirds of the foregoing dimensions, and in no case less than 3 feet in width. Where exits, corridors, passages or cross-over aisles are provided at both ends of any aisle, the said aisle shall be uniform in width and not less than the average width obtained by increasing the width of the aisle from the starting point to the end, as hereinbefore described. All aisles shall lead directly to exits.

Steps shall not be permitted in aisles except as extending from bank to bank of seats, no riser shall be more than 7½ inches, no tread shall be less than 10 inches in width, and whenever the rise from bank to bank is less than 4 inches the floor of the aisle shall be made as a ramp.

Cross-over aisles shall be uniform in width, not less than one-half the aggregate width of the aisles which they serve, and in no case less

than 6 feet in width. Width of cross-over aisles shall be measured from back of seat to back of seat.

d. Seats.

Except as provided in the following paragraph, not more than 14 seats shall be placed in any one row between aisles, and no seat shall be placed more than seven seats from an aisles. Rows of seats shall not be closer than 2 feet 8 inches, back to back, measured horizontally, and in theaters the seats shall be firmly secured to the floor. In all other paces of assemblage, seats shall be firmly secured to the floor, or the seats shall be securely fastened together in groups.

In theaters having seats firmly secured to the floor, the rows of seats being not closer than 3 feet 2 inches back to back, the seats may be arranged as follows: There shall be a railing through the center of the auditorium, separating the right from the left side of auditorium, such railing being of substantial construction and not less than 3 feet 2 inches in height. When there are not more than 25 seats each side of this center railing, they may be arranged in one continuous row, providing there is a separate exit doorway for each four rows or fraction thereof, such exit doorway to be placed directly at the end of rows. Where there are more than 25 seats each side of center railing, they shall be divided in rows of not more than 14 seats between aisles, as required in the previous paragraph.

No bank of seats shall have a greater rise than 22½ inches. Except when the seats are arranged as described in the previous paragraph, the number of rows of seats on the main floor shall not exceed 25 unless an intervening or cross aisle is provided, leading to an exit. The number of rows of seats in any gallery shall not exceed 10 unless an intervening or cross aisle is provided between each 10 rows of seats or an independent series of exits be provided for each row of 10 seats.

e. Exit Signs and Red Lights.

Each and every entrance and emergency exit which may be used in case of fire shall be numbered and designated by the word "EXIT" or "THIS WAY OUT." Numbers and letters shall be of such size that they may be read from the opposite side of the auditorium, and shall be situated over or on the entrances and exits so that they may be readily seen from any or all parts of said auditorium or gallery. A red electric light operated by a current entirely independent from the house current shall be placed over each of said signs and kept burning during the time of the entertainment and performance, and no other fixed red lights will be permitted in the auditorium, and the fact that such red lights indicate an exit to be used in case of fire shall be conspicuously printed on the program used at each entertainment.

f. Ramps.

Ramps or inclined planes shall be employed instead of steps where possible to overcome slight differences of level in or between aisles, corridors and passages. To overcome any difference of level in and between courts, corridors, lobbies, passages and aisles, ramps shall be employed of not over 1 foot in 10 feet, with no perpendicular risers, except that in aisles they may be 1 foot in 8 feet.

g. Entrance Stairs.

All entrance stairs shall be class A interior stairs.

h. Emergency Stairs.

Emergency stairs inside of building shall be Class B stairs, and if outside of the building they shall be of the fire-tower or exterior screened stairway type. Stairs and balcony of the exterior screened stairway type

shall be solidly enclosed at top, sides and floor with incombustible material. Ventilation shall be provided by means of fixed metal louvers near floor and ceiling of enclosure.

i. Doors.

Entrance doorways shall be not less than 5 feet wide. No emergency exit doorway shall be less than 4 feet 6 inches wide. Revolving doors are prohibited. No doors giving access to cloakrooms, toilet rooms, etc., shall open so as to obstruct the line of exit. Exterior doors for the use of the audience may be closed, but their fastenings shall be such as will readily yield to pressure from within at all times without the use of a key or similar instrument or any special knowledge or effort.

No fastenings shall be attached to interior doors used by the public and which are in the line of exit. All doors shall be entirely unobstructed at all times on their interior and exterior sides. Interior screen doors fitted in exit passages shall have their upper panels glazed with clear glass and shall be equal in width to the exterior doors provided for the section of the auditorium in which they are to be fitted. Exit passages and doors shall be placed as nearly in line with the aisles as possible, and in no case shall a door leading to a cloak room, toilet, managerial or rest room, etc., be placed in line with an aisle or in any location where it is likely to be mistaken for an exit door. There shall be no false doors or windows resembling an opening, or mirrors placed to resemble a door, exit, hall or corridor when no such door, exit, hall or corridor really exists. Exit doors shall not be obscured by draperies.

j. Projections.

When the sides of the auditorium face on a public street or alley, the walls of that portion of the building shall be set back or so arranged as to allow the construction of the emergency exists in such manner that they will not encroach on public space otherwise than may be allowed by the projection regulations. (See Article V.)

k. Rules for Determining Location and Size of Exits.

1. Foyers, Lobbies and Corridors.

The aggregate capacity of the foyers, lobbies, corridors, passages and rooms for the use of the audience, not including toilet rooms, smoking rooms, aisle space between seats or aisle space between seats and walls shall, on each floor or gallery, be sufficient to contain the entire number to be accommodated on said floor or gallery, in the ratio of $1\frac{1}{2}$ square feet of floor for each person. With the exception of exit doors, such foyers, lobbies, etc., shall be cut off from the auditorium by partitions having a minimum thickness of three and three-quarter inches of fire-resistive material. The foyers and lobbies for a roof garden may be located on the floor immediately beneath the roof garden in place of being on the same floor, as required above; foyers and lobbies for a gallery may be placed immediately beneath such gallery when normal access to such gallery is by means of passageways from foyer to galleries.

2. Entrance Stairs and Doorways.

In places of assemblage located on the upper floor of buildings and to which access is normally had by means of elevators, entrance stairs will not be required for the purpose of giving access to the auditorium; the same number of interior class A stairs shall be required, however, as though there were no elevators, and the term "entrance stairs" shall in this case apply to the stairs which will be required to be of the interior class T type, as distinguished from the emergency stairs.

The minimum aggregate width of entrance doorways and stairs for any tier shall be computed on the basis of one unit of width, 22 inches, for every 150 persons or portion thereof to be accommodated on that tier.

A common place of entrance may serve for the main floor of the auditorium and the first gallery, provided its capacity be equal to the aggregate capacity of the entrances to the main floor and the first gallery. Distinct and separate entrance doorways and stairs shall be provided for each gallery above the first.

In no case shall there be less than two entrance doorways to the main floor of the auditorium.

Where the seating capacity of any gallery is less than 300, only one entrance doorway and stairs to gallery need be provided.

Where the seating capacity of the gallery exceeds 300, at least two entrance doorways and stairs to gallery shall be provided.

3. Emergency Stairs.

The minimum aggregate width of emergency exits for any tier shall be computed on the basis of one unit of width, 22 inches, for every 150 persons or portion thereof to be accommodated on that tier.

There shall be provided not less than two emergency stairs on each tier of the auditorium; provided, however, that where the seating capacity of any tier is less than 300, only one emergency stair will be required on each side; where the seating capacity of any tier is less than 200, only one emergency stair will be required and may be located on either side, and where the seating capacity of any tier is less than 50, no emergency stairs will be required.

The emergency stairs from each tier shall be distinct and separate from the stairs from any other tier. Where emergency exits are required on each side of the auditorium, the aggregate width of the emergency exits on each side shall be at least half of the minimum aggregate width as computed in the first paragraph.

Halls and other places of assemblage having no movable scenery and having a total seating capacity on all tiers of less than 1,500 need not have two emergency stairs on each side of each tier, provided not less than one-half of the required stairs are placed at each side or at each end or at one side and one end of the auditorium. In the case of halls of this type located on the upper floors of completely fire-resistive buildings, the emergency stairs may be used as exits for the other parts of the building, providing their width is correspondingly increased.

4. Stairs to Boxes.

Stairs leading to a box or boxes shall be Class C stairs, independent of all other stairs.

1. Motion Picture Booths.

Where the words "fireproof construction" are used in the regulations referred to, they shall be taken to mean partitions as described in Article VI, and shall be self-closing fire doors.

2. Additional requirements for means of egress applicable to theaters, halls, churches, roof gardens, ball rooms and places of assemblage having a stage equipped for movable scenery.

a. Floor at Main Entrance.

The floor at the main entrance shall not be higher than 30 inches above the sidewalk or parking at the center of the main entrance. The main floor of the auditorium shall not be on a higher level above the floor at the main entrance than can be reached by a ramp of 1 foot in 12 feet, nor at a lower level than 42 inches below the floor at the main entrance.

b. Courts or Open Spaces.

On two sides of the auditorium, other than the sides occupied by the stage and the main entrance, there shall be open courts as described in the following paragraphs; provided, however, that such court will not be required where there is a street or public alley on such side or sides of the auditorium.

If the width of the public alley is less than the required width of such court, the walls of the auditorium shall be set back so that the aggregate width of the alley and the setback shall be equivalent to the required width of the court.

Every such open court or space shall extend from each and every exit required to lead thereto to a street or public alley at least 15 feet wide either opening directly thereon or through a corridor or passageway of fire-resistive construction not less than 8 feet high in the clear, having an unobstructed clear width equal to that required for the open court or space is equal to that required for the total number of persons from the building of structure through which it passes, provided that no such corridor or passageway shall pass under any portion of the auditorium or stage.

The said open courts, spaces, corridors and passageways shall more auditoriums, provided the unobstructed clear width of such open court or space is equal to that required for the total number of persons to be accommodated in all the auditoriums opening on the same.

The minimum width of such open court shall be not less than eight feet wide where the total seating capacity of the auditorium is not over 1,000, and shall be increased in the ratio of 2½ inches for each additional one hundred of seating capacity.

c. Emergency Stairs.

All emergency stairs shall land at the ground level in a street or public alley or in the above-mentioned courts or open spaces, and the bottom flight shall be directed towards the egress to the street or public alley. Staircases shall not encroach upon the required width of the open courts or spaces below a line 8 feet above the floor of the open courts or spaces.

3. Requirements for means of egress in stage block where stage is equipped for movable scenery.

a. Location.

The stage block, comprising the stage, dressing rooms, workshops, storage, etc., shall be located with at least a portion of one frontage on a public street, a public alley not less than 15 feet wide or private space not less than 15 feet wide connecting to such alley or street.

b. Stage Stairs.

At least two independent stairs shall be provided for the service of the stage and shall be located on opposite sides of the same. These stairs shall run to the fly galleries and gridiron and continue through the roof. Stairs shall be not less than 2 feet 6 inches wide. They may be circular in plan or have winders. They shall not be used for access to dressing rooms.

c. Dressing Room Stairways.

The dressing rooms shall constitute a distinct portion of the building, separated from the auditorium and stage by masonry walls.

The stairs and corridors giving access to the dressing rooms shall be Class C stairs, continuing to the roof or to some fireproof passageway or exit and in no case shall they open directly upon the stage. Each dressing room shall have access to at least two exit stairs.

4. Other requirements for theaters and places of assemblage having a stage equipped for movable scenery.

a. Stage Block.

Stages may be equipped with movable scenery, consisting of borders, side pieces and drops, etc., all of which shall be treated with fire-proofing paint.

The stage shall be separated from the auditorium by a solid masonry wall not less than 12 inches thick, except that proscenium girder or truss may be protected with terra cotta. This wall shall extend from the levels of the footings of the containing walls of the stage to a height of not less than 12 inches above the outer covering of the stage roof, or the auditorium roof if the latter be higher. Beside the proscenium opening, there may be two doorways in the proscenium wall at the stage level, each opening not more than 21 square feet in area. These doors shall be class A automatic fire doors. The decorations and enrichments forming the proscenium frame shall be of incombustible material. The stage floor for a width of not to exceed 15 feet more than that of the proscenium opening may be of wood, but the subflooring shall not be less than 1 $\frac{5}{8}$ inches thick. Fly galleries, rigging lofts and paint galleries, all railings and supports and stancions thereon, shall be on non-combustible construction, and all equipment shall be of metal. All framing for scenery used on or about the stage shall be coated with fire-proofing paint, the qualities of which shall be submitted to and approved by the Inspector of Buildings. All wood used for the removable stage floor shall be coated on the underside with the same kind of paint.

b. Ventilation Over Stage.

There shall be provided in the roof of the stage not less than two monitor ventilators of an approved type whose combined openings in the sides above the roof shall not be less than one-eighth of the entire area of the stage.

The openings in the sides of the monitors shall stand 18 inches above the roof and shall be closed by doors hinged at the bottom with brass hinges and adjusted weights on the outside so that the doors will open completely to the outside when released from within.

The doors shall be held in place on the inside with $\frac{1}{4}$ -inch ropes extending to a convenient location in the auditorium so that they may be operated by hand, and such ropes shall have therein fusible links melting at 162 degrees F.

The roof of the monitor shall project 12 inches. No obstruction shall be placed in the ventilators or in the passage leading thereto which would obstruct a free circulation up to and through the ventilator.

c. Fire-Resistive Proscenium Curtain.

1. General Requirements.

All proscenium openings shall have a curtain made of incombustible materials constructed and mounted to intercept hot gases, flame and smoke and prevent glow from a severe fire on the stage from showing on the auditorium side for a sufficient length of time to permit the safe and orderly exit of all persons from the auditorium with a reasonable allowance of excess time. The period of protection shall not be taken less than 15 minutes. The curtain shall be opened and closed at least once every time there is an audience in the theater. The closing of the curtain from the full open position shall be effected in less than one minute, but the last five feet of travel shall require not less than five seconds.

2. General Design.

The curtain shall have a rigid framework of steel or other suitable material covered either (a) with metal sheets and insulating materials or (b) with woven asbestos cloth having wires inserted or twisted into the yarns of the warp and filling, and in accordance with the details hereinafter specified. It shall have sufficient strength to resist a lateral pressure of ten (10) pounds per square foot of its area when in the closed position, with a factor of safety of not less than 2 on the ultimate strength of the construction, and the mounting and details shall be such as to insure ready and positive closure when subjected to pressure of five (5) pounds per square foot.

The design strength of tension members and cloth shall be based on center deflections of not to exceed one-tenth (1-10) of the span. In no case shall the maximum deflection cause a permanent set or bend in the curtain structure, nor shall it cause the curtain to rub against the wall at the edges of the proscenium opening.

The thickness of the curtain shall in no case be less than 3 inches, nor less than one-hundred-twentieth (1-120) of its span. The width and height of the curtain shall be such that it shall overlap the sides and top of the proscenium opening at least 9 inches.

Provision shall be made for the expansion of the curtain and guides due to changes in temperature. An allowance of 1-16 inch per foot of length of steel members shall be made for such purpose.

The curtain shall be guided throughout its travel by rigid steel guides. Such guides shall be securely bolted in place and designed to form a stop between the curtain and the wall to prevent smoke and flame from passing around the edges of the curtain. Where the main curtain members carry the stresses from lateral pressure on the curtain as suspension tension members, the guides and their attachment to the building shall have adequate strength to safely carry the reactions from these tension-members.

The top of the curtain shall have a smoke stop fitted to make it as nearly smoke tight as practicable. The bottom of the curtain shall have a yielding pad of incombustible material not less than three inches thick to form a seal against the floor.

The calculation for the strength of the curtain, curtain mountings and all the details thereof shall conform to generally accepted engineering methods and practice. The stresses in materials shall not exceed those prescribed in Article III.

3. Curtain Covering.

The metal curtain (a) shall have its front or auditorium side covered with well fitted metal plates. The stage side shall be covered with insulating boards made of asbestos or other suitable incombustible materials. Such insulating boards, if of asbestos, shall be at least three-eighths ($\frac{3}{8}$) inch thick and weigh not less than two (2) pounds per square foot if of solid material, or not less than three-quarter ($\frac{3}{4}$) inch thick and weigh not less than one and three-quarter ($1\frac{3}{4}$) pounds per square foot if of cellular construction. Other materials which have been proven the equivalent of the above specified asbestos boards in strength, fire resistance and insulating properties may be used in lieu thereof. The covering materials shall be firmly attached to the curtain frame, and all joints and joinings thoroughly cemented with a fire-resistive or furnace cement.

The asbestos cloth curtain (b) shall have its framework covered on both sides with a metal-reinforced, close-woven asbestos cloth weighing not less than three and a quarter ($3\frac{1}{4}$) pounds per square yard. The marginal members of the frame shall have the cloth covering extended

around them to form insulation of at least two thicknesses, or shall have equivalent insulation applied in other manner.

The covering cloth shall have incorporated into the yarn before weaving either monel metal, nickel, brass, chromel, nichrome or other metal or alloy having not less resistance to corrosion at ordinary temperature. Asbestos cloth made of long-fibered blue Crocidolite asbestos is considered the equivalent of chrysotile asbestos cloth of the same weight having brass wire reinforcement. The wires may be either single or double, but the tensile strength of wires in each strand of yarn shall be not less than seven (7) pounds as tested at ordinary temperatures, and the strength of the yarn, with the wires, shall be not less than twelve (12) pounds when determined on a four-inch length between the gripping jaws of the testing machine. The strength of the cloth in tension shall be not less than one hundred and eighty (180) pounds per inch of width of warp and eighty-five (85) pounds per inch of width of filling when tested in strips one inch wide with four (4) inches length between the jaws of the testing machine. The head of the testing machine shall have a speed of travel not to exceed twelve inches per minute. The asbestos fiber of the yarns may contain cotton or other combustible fiber in amount not to exceed 4 per cent of the weight of the asbestos. The total carbon content of the cloth shall not exceed two and one-half (2½) per cent of the total weight of fiber. A sample of cloth of not less than one-half square yard shall be submitted for inspection and tests.

The seams of the cloth shall have double rows of stitching of asbestos thread, having metal wires, of the same or greater strength than the yarns of the cloth.

The asbestos cloth curtain shall have the interior framework of tubes, structural shapes, bars or rods of steel, with horizontal members spaced not more than eight (8) feet apart and the vertical members not more than twelve (12) feet apart. The arrangement of these interior members shall be such as to secure a positive separation of the cloth on the two sides of at least two (2) inches.

After erection the asbestos cloth on both sides of the curtain shall be filled with a mineral paint having a silicate of soda binder, to which may be added casein in the proportion of not more than four (4) part casein to ten (10) parts of concentrated solution of sodium silicate. Any other paint which will completely fill the pores of the cloth and which shall be capable of withstanding fire without giving out more smoke than the above will be permitted. The paint shall be applied hot and brushed well into the cloth so as to make it practically smoke tight.

4. Operating Equipment.

The mechanism and devices for controlling the curtain shall be of simple design and positive in operation. The opening of the curtain may be by hand, hydraulic or electric power machine; the closing for emergency or automatic operation shall be the same as for ordinary operation and shall be by gravity, obtained by underbalancing the curtain with reference to the counterweights but not less than one pound per square foot of curtain. Any other method proposed for emergency or automatic closure shall be proven as at least equivalent to that outlined above in effectiveness and reliability.

In addition to the regular operating control station, which shall be on the stage floor, there shall be three emergency control stations, one shall be subject to the approval of the proper legal authorities. The emergency control and the automatic control equipment shall cause the opening of the ventilator over the stage while the curtain is being closed. The emergency control shall be used to close the curtain and open the ventilator at least once for each performance.

For hydraulic machines the water supply shall be taken from an elevated tank or from a suitable accumulator. When the water supply is taken from a sprinkler supply tank the connection shall be made at such a height as to leave sufficient water for sprinkler requirements. For electric machines the current supply shall be fused independently of the house supply. All parts of the electric power supply shall be enclosed and well protected against fire.

All machines and hoisting gear shall be designed in accordance with Section IX, Elevators and Dumbwaiters. Travel limit stops, and room for over travel shall be used on such machines. Lifting cables shall be not less than one-half ($\frac{1}{2}$) inch in diameter.

5. Approval of Plans and Installations.

Complete details of the proposed curtain shall be submitted to the Inspector of Buildings and approval obtained before the installation or erection of any proscenium curtain is begun. The completed installation shall be similarly approved after operating tests, before any theater is opened for public performances.

6. Curtains of New Designs.

Installations of curtains of other designs and materials than herein specified shall, before acceptance, be subjected to a fire test conducted in accordance with the Standard Specifications of the American Society for Testing Materials for Fire Tests of Materials and Construction; Serial Designation: C19-18, as applicable to non-bearing partitions with the following changes and exceptions: The test shall continue for a period of fifteen minutes, unless failure shall have occurred previously. The temperatures on the unexposed surface shall be measured by thermocouples with wires not over .02 inch diameter having junction and adjacent wire so mounted as to indicate as accurately as possible the temperature of the unexposed surface. The temperature of the testing room adjacent to the unexposed surface shall be not lower than 10 degrees C. (50 degrees F.) at the beginning of the test and shall be free from convection currents except such as are induced by the fire test. The average temperature on the unexposed side of the test curtain shall not exceed 260 degrees C. (500 degree F.) at 10 minutes nor 371 degrees C. (700 degrees F.) at 15 minutes. The unexposed face of the curtain shall not glow within the test period nor shall there be any passage of smoke or flame through the curtain.

d. Heating Plant.

All boilers shall be placed outside of the walls, auditorium, stage and lobbies of theaters and in a location approved by the Inspector of Buildings. The space allotted to the heating plant shall be enclosed by walls of masonry on all sides. All doorways in the walls of boiler rooms shall have fire doors. All supply, return or exhaust pipes shall be properly encased and protected where passing through floors or near woodwork. The use of hot-air furnaces or stoves is prohibited. All blowers used to circulate air through heating or ventilating pipes with openings to the auditorium shall be provided with a device to stop the blower automatically in case of fire. Fusible links for this purpose shall be located near the blower, both inside and outside the pipe leading to openings in the auditorium.

e. Workshops and Property Rooms.

No workshops, property room or store room shall be arranged within the containing walls of the stage or auditorium. All workshops, property rooms and store rooms shall be arranged as a separate unit of the theater building and shall be separated from the stage and auditorium by masonry walls not less than 12 inches thick, all opening in such walls to have

approved class A self-closing fire doors on one side and class A automatic fire door on the other side of wall.

f. Fire Alarm Apparatus.

Every theater shall be provided with an approved system of automatic or manual fire alarm telegraph apparatus, connected by the necessary wires with the headquarters of the city fire alarm telegraph and such other place or places as the Inspector of Buildings shall approve. The number and location of the boxes and the character of the system, whether automatic or manual or both, shall be approved by the Inspector of Buildings.

g. Sprinkler System.

A separate and distinct system of automatic sprinklers, with fusible plugs, approved by the Inspector of Buildings, supplied with water from a tank located on the roof and not connected in any manner with the stand pipes, shall be placed at each side of the proscenium opening and on the ceiling or roof over the stage at such intervals as will protect every square foot of stage surface when said sprinklers are in operation. Automatic sprinklers shall also be placed, wherever practicable, under the stage, in the dressing rooms, carpenter shop, paint rooms, store rooms and property rooms.

h. Floors.

Except for a portion of the stage floor provided for above, all floor surfaces shall be of incombustible material, and no wood, boards or sleepers shall be used as a covering over these floors, seat platforms, aisles, steps, landings, passages or stairs.

i. Trim.

No combustible doors or trim shall be used in the auditorium and none of the walls or ceilings shall be covered with wood sheathing, wood wainscoting or other combustible material, but this shall not preclude the construction of a wood sounding board over orchestra pit when the same extends back of and below the overhang of the stage; provided the said wood sheathing be properly fire-stopped by a 12-inch masonry wall back of same, and also have a proper fire-resistive construction directly under the overhang of the stage extending from the brick wall to the apron of stage.

H. MOTION PICTURE FILM EXCHANGES.

1. Means of Egress.

To be the same as required for factories and workshops.

I. MIXED OCCUPANCIES.

1. By mixed occupancy is meant the use of one building for two or more distinct uses, such as an apartment house with store or garage, a theater with office building, etc.

2. In all cases of mixed occupancy all of the egress requirements for each type of occupancy shall be made to apply to that portion of the building given over to such type of occupancy.

3. When a building has a mixed occupancy calling for conflicting fire-resistive classifications, the entire building shall take the more fire-resistive classification.

4. Theaters.

Nothing in these regulations shall be construed to prevent the construction of a completely fire-resistive building above a fire-resistive theater, providing no part of such fire-resistive building shall be placed above the stage block. The portion containing the theater, including all

passages, lobbies and other accessories connecting therewith, shall be cut off vertically from fire-resistive building by unpierced fire walls of solid masonry not less than 12 inches thick and horizontally by unpierced fire-resistive floors. No portion of such fire-resistive building shall be occupied or used in any business dealing in any article or material dangerous to life, in the opinion of the Inspector of Buildings.

.5 Places of Assemblage.

All places of assemblage not having a stage equipped for movable scenery may be located in buildings used for other purposes, without the use of masonry fire walls to separate the place or places of assemblage from the balance of the building. Places of assemblage having a stage equipped for movable scenery shall be separated from other parts of the building as described for theaters.

6. Means of Egress.

Where more than one occupancy is allowed in one building without the use of fire walls to divide such occupancies, common means of egress may be provided for all occupancies, provided the minimum aggregate width of such means of egress complies with the minimum aggregate requirements of all occupancies.

Sec. II. Any violation of this ordinance shall be punishable by a fine of not less than One Dollar or more than One Thousand Dollars or by imprisonment in the County Jail in the County wherein such violation occurred for a term not to exceed ninety (90) days or both fine and imprisonment in the discretion of the Court.

Sec. III. The foregoing regulation shall take effect on October 16, 1939.

Sec. IV. Any ordinance or part thereof in conflict with the provisions of this ordinance, is hereby repealed.

Mr. Huck seconded the adoption of this Ordinance, and same was adopted on a Yea and Nay Vote. Voting Yea, Mayor Adams, Councilmen Conger, Duehring, Harrigan, Huck and Taft. Voting Nay, none.

Supt. of Works Fischer advised the Council that The Contee Sand and Gravel Company had advised him that they had no 24" Gutter forms and that they would have to use 16". After discussion of this matter, Mr. Harrigan moved that the Contee Sand and Gravel Company be told that they are to furnish 24" Gutter, as his bid specified, and as advertised, and that should they not begin work within the stipulated time under those specifications, his bid check will be forfeited, and that the Town will award the contract to the next lowest bidder, C. S. Faller. Motion seconded by Mr. Taft and approved.

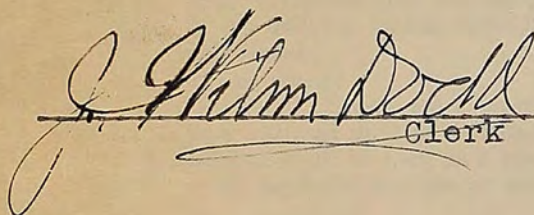
Supt. of Public Works Fischer advised Council that Mrs. Robertson of the Welfare Center had advised that the lock had been broken on the Welfare Center door and the building entered by unknown person or persons. Supt. Fischer was ordered to install a new lock.

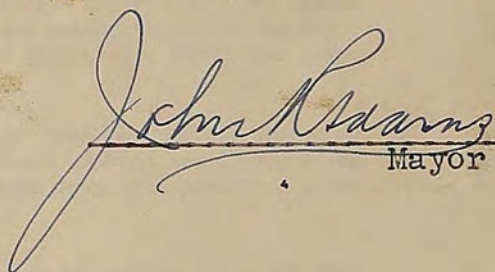
Supt. Fischer also advised the Council that for some time the Town had been in need of a light weight street roller, and advised that he had been on the lookout for such a roller for some time, and that Mr. H. H. Hershberger, a Contractor of Baltimore, Md., had a Roller that would answer the purpose of the Town, the Roller having originally cost \$2750.00, and that due to the fact that Mr. Hershberger was going out of the contracting business, he had offered the Roller to the Town of \$600.00 cash. After discussion of this matter, Mr. Harrigan moved that this Roller be purchased from Mr. Hershberger for \$600.00, and suggested that same be given a coat of paint and put in first class condition upon delivery. Motion seconded by Mr. Conger and approved.

A letter was read by the Clerk from D. P. Moyer and A. J. Moyer regarding a fire hazard which existed in the rear of the stores in Laurel Avenue, and adjacent to their residence, due to rubbish being burned in the incinerator in the rear of these stores on windy days. The Mayor referred this letter to the Municipal Service Committee, and requested that the matter be looked into.

On motion, properly seconded, Council adjourned at 10:10 P.M.

Indexed


Clerk


Mayor