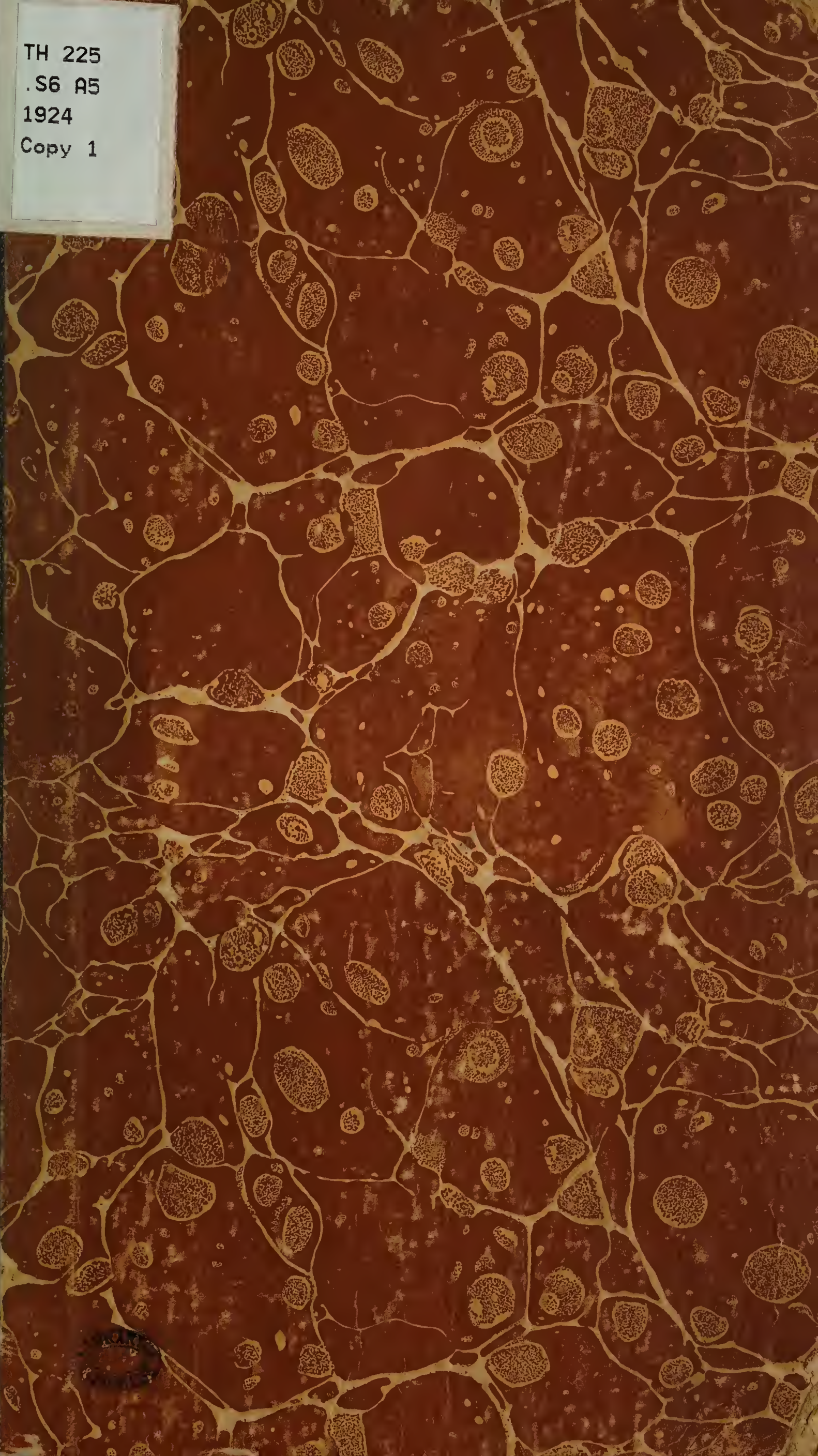


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THE BUILDING CODE

OF THE

CITY OF SEATTLE

AND

Other Data Useful to
Architects and Builders

Corrected to January 1, 1924

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The Building Code

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Except for Parts 2, 6 and 8, which are yet to be revised, the building code as printed in this issue is substantially the product of the Building Code Commission, which was created by resolution of the City Council in 1920. This Commission is composed of twenty-eight members, representing various City departments and civic and commercial organizations. The Commission's executive committee, consisting of ten members, has met on an average of once in two weeks for the last three years. Various sub-committees have held approximately an equal number of meetings. Since practically all meetings have been held from 7:30 to 10:00 p. m., some idea may be had of the time and thought which have been and still is being contributed in an effort to give this city a better building code.

The Commission lays no claim, however, to the production of a perfect building code, nor the accomplishment of any other humanly impossible task. They are confident, however, that the building knowledge and experience gained in the last ten years has made it possible to formulate better balanced building regulations than were possible at the time our very creditable 1913 building code was drafted. Changes have been made only after careful thought and discussion, and the Commission requests that the public be slow to criticise, remembering that it is easy to find fault, but rather difficult to create something really worth while.

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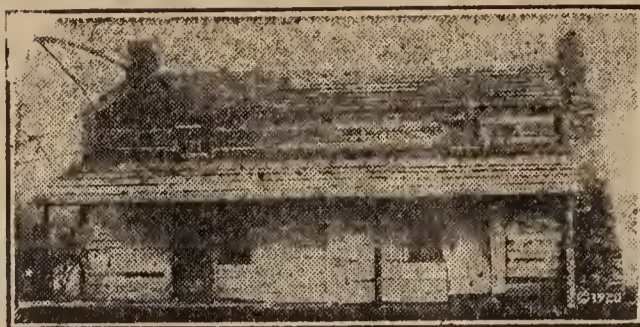
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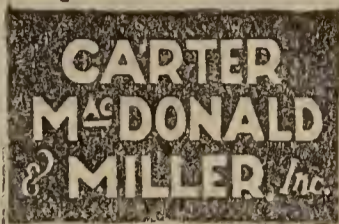
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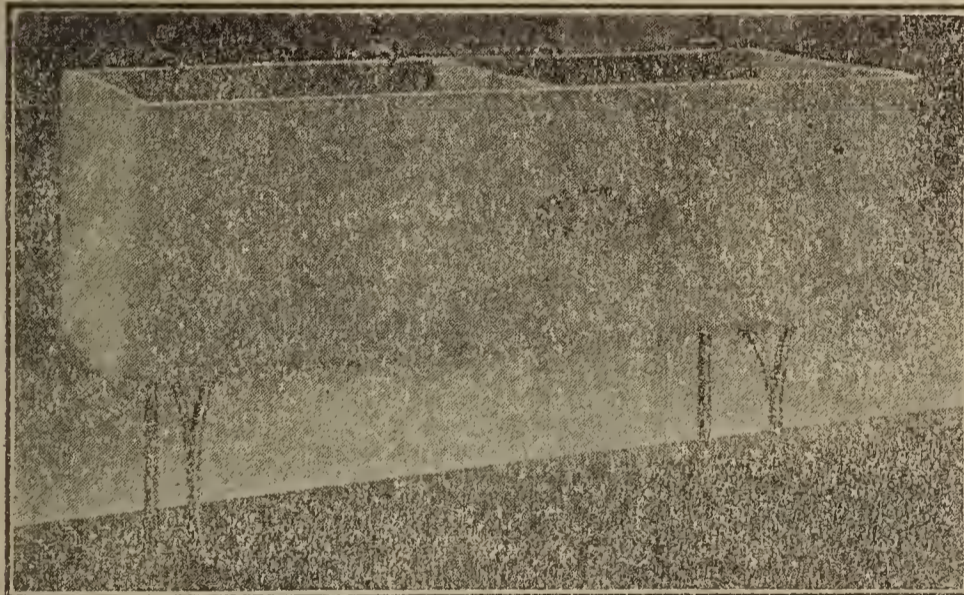
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Lester & Monahan.....
.....Pier A Smiths Cove
Wood, J. R.....621 Valley St.

RAILROAD SECTION

J. M. Bruce & Co..American Bk. Bldg.
Henry & McFee..Northern Life Bldg.

NON-RESIDENT MEMBERS

Boyer, Harry.....Yakima, Wash.
Norris Bros.....Burlington, Wash.
McWilliams & Ross...Yakima, Wash.
H. E. Wilder...Sedro-Woolley, Wash.

Seattle's Leading Agency

—IN

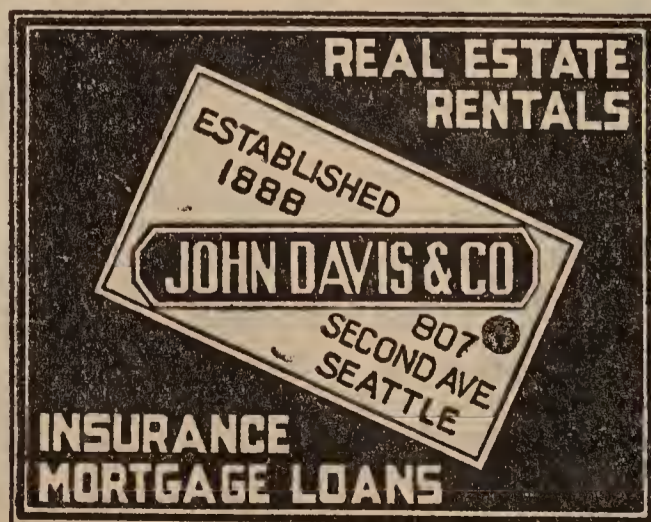
Property Management

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OUR CENTRALLY LOCATED GROUND FLOOR OFFICE ADDS TO OUR FACILITIES AND TO THE GENERAL REAL ESTATE AND RENTAL SERVICE OFFERED YOU.



THE BUILDING CODE

CITY OF SEATTLE

ORDINANCE NO. 31578 AS AMENDED TO JANUARY 1, 1924

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PART 1 ADMINISTRATION

Section 101. This ordinance shall be designated the Building Code of the City of Seattle.

Section 102. The Building Code shall apply to construction, occupancy, use, maintenance, moving, demolition, alteration and repair of all buildings, docks, wharves, retaining walls, fire escapes, fire extinguishing equipment, either in or upon a building, billboards, flag poles, chimneys, and similar structures. It shall apply equally to both public and private property and shall be binding upon all owners, lessees, agents, architects, contractors, engineers, foremen and other persons having charge of the construction, occupancy, use, maintenance, demolition, alteration or repair of the structures or equipment to which this Code applies.

Section 103. This ordinance shall not invalidate any permit, lawfully issued by the Superintendent of Buildings, provided said permit has not expired.

Section 104. This ordinance shall not be construed as affecting any prosecution or proceeding for violation of the provisions of any previous ordinance covering the same subject matter, but all proceedings or prosecutions now pending for such violations may be conducted to final judgment or determination as though this ordinance had not been enacted.

Section 105. It shall be the duty of the Superintendent of Buildings to enforce this ordinance, except where otherwise expressly provided herein or by City Charter.

Section 106. It shall be unlawful for any person to construct, alter, repair, remove or demolish any building or other structure or equipment regulated herein, until a permit therefor has been obtained from the Superin-

endent of Buildings and until a permit placard furnished for said purpose by the Superintendent of Buildings has been posted in a conspicuous place upon said premises.

It shall be unlawful for any person to construct, alter, repair, remove or demolish any building or other structure, or any equipment regulated herein, or to use or occupy any structure except in accordance with the provisions of this ordinance.

Section 107. Minor repairs may be made to buildings in the Third and Fourth Building Districts without procuring a permit or giving notice to the Superintendent of Buildings, providing the repairs are not in violation of any of the provisions of this ordinance, and providing nothing is done to impair the strength of the building or affect its egress, light, air, or ventilation.

Section 108. Application for permits shall be made in writing to the Superintendent of Buildings on forms provided therefor. Each application shall be signed by the owner, lessee or by an authorized agent of such owner or lessee. There shall also be filed with such application two (2) sets of printed drawings and specifications fully and definitely describing the extent and nature of the work for which said permit is desired. Provided, that the Superintendent of Buildings may issue a permit without plans and specifications being filed when a specification written on the permit will describe the work contemplated in sufficient detail to enable him to determine whether or not it complies with all the provisions of the Building Code. Should such plans or specifications be incomplete, indefinite or unintelligible, the Superintendent of Buildings shall reject the same and refuse to issue a permit based thereon.

Section 109. Every application for a permit to construct, move, alter, or repair a building, and the plans filed therewith, shall state the purpose for which all parts of the building are to be used, and the permit issued thereon shall carry with it the authority to use said building for the purpose stated on the plans and permit

Section 110. Every application shall state the estimated cost of the work contemplated, which cost shall be used in determining the estimated value of building improvements in the City. Should the Superintendent of Buildings believe that the estimate given by the applicant is too high or too low, he may change the estimate to an amount which he believes to be correct, providing he indicates on the permit that the estimate is his rather than the applicant's.

Section 111. As soon as possible after the application for permit has been filed, the Superintendent of Buildings shall examine same and any plans or specifications filed therewith and ascertain whether that which is contemplated therein complies with this Code. If they do not comply therewith, he shall so advise the applicant. If it is found that the application, plans and specifications indicate only that which complies with the Building Code, or they are corrected or amended so as to comply therewith, the Superintendent of Buildings shall issue to said applicant a permit based thereon and mark such plans and specifications "Approved" for identification. One set shall be returned to the applicant, together with a permit placard. The other set shall remain in the office of the Superintendent of Buildings until the work is completed and as long thereafter as deemed advisable by him, after which time it shall be destroyed if not called for by the owner thereof.

Section 112. It shall be unlawful without the consent of the Superintendent of Buildings, for any person to change the plans or specifications after same have been approved and a permit obtained thereon, or to proceed with any work not in accordance with such plans and specifications. Permits for altering or changing plans or specifications shall be obtained in the same manner as hereinabove provided for the original permit. Nothing in this section shall, however, prevent minor deviations from the plans or specifications where the same do not affect structural members, means of egress, the rapidity with which fire would spread, provisions for light, air and ventilation, or other essentials when the same shall not be a violation of the requirements of this ordinance. In case any plans or specifications shall be changed after a permit is issued by amendment of such plans or specifications, such amendment shall remain attached to the plans as originally approved and shall be available for the information of inspectors and others interested in the carrying on of such work.

Section 113. No permit presuming to give authority to violate, or fail to comply with, the provisions of this ordinance shall be valid except in so far as the work or use to which it authorizes is lawful.

The issuance of a permit upon

drawings and specifications shall not prevent the Superintendent of Buildings from thereafter requiring the correction of errors in said plans and specifications or from preventing building operations being carried on thereunder when in violation of this Code or of the City Charter.

Section 114. A permit issued hereunder shall be valid only for the number of days stated therein and in no case for a longer period than one (1) year from the date of issuance.

Section 115. It shall be unlawful for any person to prevent, or seek to prevent, or in any manner interfere with, the Superintendent of Buildings or his authorized representative, in any inspection of any structure, equipment or construction operation over which the Building Code gives him jurisdiction, or to prevent the said Superintendent of Buildings, or any other public official designated herein from performing any duty imposed by this ordinance. The Superintendent of Buildings, or his authorized representative, shall, before entering an occupied residence or apartment for the purpose of making such inspection, obtain the consent of the occupant thereof, or enter only for such inspection after giving twenty-four (24) hours' written notice of intention so to do.

Section 116. It shall be unlawful to change the use of a building or part thereof to a use requiring different construction, egress or equipment without obtaining a permit so to do from the Superintendent of Buildings. Before such permit is issued he shall determine whether or not the construction, arrangement and equipment of such building conform to the requirements of this Code for the use intended. Should they be found to conform the permit shall then be issued, but should they not conform the building shall not be used for the contemplated use until such alterations in construction, arrangement and equipment have been made as are necessary to make the building conform to the requirements of this Code for the proposed use.

Nothing herein shall be construed to require a permit for a change of tenants so long as the character or nature of the use is not changed.

It shall be the duty of the Fire Marshal to notify every owner or lessee who is using, or causing to be used, any lot or building or other structure for any purpose when the use thereof constitutes a violation of any of the provisions of the Building Code, and it shall be unlawful to continue to so use said lot or building or other structure after having been notified by the Fire Marshal. The Fire Marshal may cause any unlawfully occupied structure or lot to be immediately vacated by notifying the owner thereof, or lessee, in writing or by posting a notice on the property.

The above shall not be considered, however, as relieving the Superintendent of Buildings from enforcing any of the provisions of this ordinance relating to change of use, should he discover violation thereof during the performance of his duties.

Section 117. It shall be the duty of the Fire Marshal to see that the means of egress, fire escapes, sprin-

kler systems, stand-pipes, division walls, fire doors, construction for segregating dangerous uses and all other parts of buildings or equipment thereof which are intended to assist in the extinguishing of fire, or to prevent the origin or spread of fire, or to safeguard life or property from fire, shall be maintained in a usable and safe condition, and it shall be unlawful to fail to so maintain them or to fail to immediately comply with any lawful notice or order of the Fire Marshal made in accordance with the provisions hereof.

As soon as any fire extinguishing equipment is installed in or upon any building, it shall be the duty of the Fire Marshal to inspect the same and notify the Superintendent of Buildings as to whether or not such equipment is installed in accordance with the provisions of this Code.

Section 118. All buildings and other structures shall be safe from collapse or structural failure of any kind, and, except as otherwise provided, the requirements of this ordinance shall be considered the standard of safety, provided that a structure built under authority of, and in accordance with, former building ordinances shall not be required to have structural alterations or additions made thereto, except where the strength of the structure has so deteriorated as to make it unsafe.

Section 119. The Superintendent of Buildings is authorized and empowered to direct and require that any building, or portion thereof, remain vacant or be vacated, removed or demolished, by posting a notice to that effect conspicuously thereon or by notifying in writing the owner, lessee or person in charge, whenever it be found that the following conditions, or any of them, exist:

(a) That such building has been erected, altered or required subsequent to the passage of this ordinance to a manner contrary to the provisions hereof or the permit issued hereunder.

(b) That the construction, arrangement or equipment of such building, or portions thereof, is contrary to the provisions of this Code for the purpose for which such building is used or occupied.

(c) That such building is unsafe to human life or to property from any cause whatever or in imminent danger of so becoming.

(d) That such building is not provided, to the extent and in the manner required by ordinance, with proper and sufficient means of egress in case of fire or of fire protective and fire extinguishing apparatus or of light and ventilation.

Section 120. The Superintendent of Buildings shall inspect, or cause to be inspected, every building or other structure or anything attached to or connected therewith which he has reason to believe is structurally unsafe or dangerous, and if he finds it unsafe or dangerous, he shall forthwith in writing notify the owner, agent or person in charge of the building to make secure or remove such unsafe attachment or structure and shall affix in a conspicuous place upon the exterior of said building or other structure a notice of its dangerous condition. The person so notified shall promptly make secure or re-

move said building, structure, attachment or connection.

Section 121. If the public safety so requires, the Superintendent of Buildings, with the approval of the Mayor, may at once enter any building deemed unsafe, the land on which it stands, or the abutting land or buildings, with such assistance as he may require, and make the same safe, and may erect fences, barriers or such other devices for the protection of the public as may be necessary, and shall charge to the owner or his authorized agent such costs as may be incident to the work.

Section 122. Every day that any person shall continue to occupy premises after the issuance and posting of a notice by the Superintendent of Buildings directing their vacation shall be deemed a separate offense committed by the owner or his agent.

Section 123. It shall be unlawful for any person to remove, mutilate, destroy or conceal any notice issued and posted by the Superintendent of Buildings pursuant to the provisions of this Code.

Section 124. The Superintendent of Buildings shall have authority to order the immediate suspension of all or any portion of the work on any structure, equipment or excavation over which this Code gives him jurisdiction, by posting a notice to that effect on such structure or premises whenever it be found by him that such work is being performed without a lawful permit or that the drawings and specifications bearing the approval of his office are not available for examination on the premises, or that the work is not being carried on in conformity with the permit or is in violation of this ordinance, or that such suspension is necessary to the proper inspection of the work previously performed, or that the work is being conducted in a dangerous or unsafe manner, and it shall be unlawful for any person to continue any such work after the posting of said notice by the Superintendent of Buildings, or to occupy any building or premises after a vacation, removal or demolition notice has been given or posted.

Section 125. Any implied requirements of this ordinance which are not specifically covered herein but necessary to procure or maintain adequate strength or stability of buildings or other structures or to safeguard the occupants thereof or the public, as well as interpretation of any conflicting provisions of the Building Code or of any statement therein the meaning of which is obscure, shall be determined by the Superintendent of Buildings.

Section 126. When the Superintendent of Buildings and an applicant for permit, or other interested party, cannot agree as to the correct interpretation of any part of the Building Code, said applicant or other party may appeal from the interpretation of the Superintendent of Buildings, or from any requirements of his not specifically covered by ordinance, to the Board of Appeals by paying Ten (\$10.00) Dollars into the City Treasury and giving written notice of appeal to the secretary of the Board of Appeals and a copy thereof to the Superintendent of Buildings.

Should the Board of Appeals decide that the interpretation of the Superintendent of Buildings is not the true and correct interpretation and should, therefore, sustain the appeal, the deposit of Ten (\$10.00) Dollars shall be returned to the applicant by the City Treasurer.

No appeal shall be granted by the Board of Appeals without rendering a written opinion of what said Board decides to be the true and correct interpretation of all parts of the Building Code which are interpreted by the Superintendent of Buildings as forbidding that which the appellant desires to do. Such written opinion shall appear in the minutes of the Board and shall be conspicuously posted in the office of the Superintendent of Buildings, and no permit based upon the granting of an appeal shall be issued by the Superintendent of Buildings until the Board shall have rendered such written opinion in accordance with the provisions herein provided.

It shall be the duty of the Board of Appeals to submit to the Mayor, on or before the 1st day of April of each year, a report of its activities for the preceding year.

Section 132. The following words and expressions, wherever used in the Building Code, are used in the sense defined in this section:

ALLEY: A public thoroughfare which is less than twenty (20) feet in width, or one which is twenty (20) feet or more in width but unnamed.

APARTMENT or FLAT: Any number of rooms occupied as the dwelling place of but one family, except that it shall not include a residence as herein defined.

APARTMENT HOUSE or FLAT BUILDING: A building containing one or more apartments.

AREA: The term "area" when applied to the floor of a building, shall mean the number of square feet lying within the plane of the floor and bounded by the exterior faces of the enclosing walls.

AREAWAY: A space below the surface of the ground adjacent to, and outside of, a building and used in connection therewith.

AUTOMATIC DOOR or WINDOW: One which is arranged to close when released by the action of heat.

BALCONY: A partial floor having an area of not more than fifty per cent. (50%) of the area of the room in which it is located.

BILLBOARD: A structure, or any portion thereof, used principally for the displaying thereon of advertisements and having an advertising surface in excess of twenty-four (24) square feet.

BILLBOARD ADVERTISING SURFACE or FACE: The solid surface, including mouldings, modillions, etc., upon which billboard advertisements are painted, pasted or fastened, or the plane in which silhouetted or illuminated letters, characters or pictures producing a billboard advertisement, are placed. The dimensions of the face of billboards shall be measured to the extreme edges of the solid faces of boards, and on electric signs to the extreme edges of the advertisement.

BILL POSTER: Any person who places on any billboard, fence, or surface of a building any advertisement, except the following:

An advertisement which is owned by the person whose business it advertises, which advertises said business exclusively, and which is located on the premises on which the business it advertises is located; and advertisement which advertises exclusively the sale or lease of the property upon which it is located.

BUILDING: Any structure built for the support, shelter, or enclosure of persons, animals or chattels, and when separated by division walls without openings, each portion so separated shall be deemed a separate building.

BUILDING, WATERFRONT: A building having at least twenty-five per cent. (25%) of its ground floor area supported on piles above fresh or salt water, and so used as to make the maintenance of a division wall separating the portion over the land from the portion over water impracticable. This shall not be construed to include buildings constructed over the water which comply in all respects with the provisions of the Code for buildings constructed on land, except as to foundations.

CLUB: A building used for the mutual entertainment, recreation and lodging of the members only of an organized club or society and their guests.

COURT: Any part of a lot or the space above it which is unoccupied from the ground to the sky, or from an intermediate floor to the sky; and in relation to a story of a building, it shall mean the part of a lot which is unoccupied above a horizontal plane passing through said story at the level of the sill of the lowest window transmitting light from the court to said story. The term "court" shall not include vent shafts.

COURT—EXTERIOR: A court which is bounded on one or more sides by a street or alley.

COURT—INTERIOR: Any court other than an exterior court, as herein defined.

DETENTION, PLACES OF: Houses of correction, police stations, detention stations and jails.

DIVISION OF A BUILDING: That part of a building which, because of its area or occupancy, is separated or required to be separated from other parts of the building by a division wall or walls.

DIVISION WALL: An interior wall dividing a building and extending from the ground to and through the roof.

DOOR: See "Self-closing" and "Automatic."

DWELLING: A residence.

DWELLING PLACE: A building, or part thereof, which is occupied by one or more families, who live therein and cook their own food upon said premises.

ELECTRIC SIGN: A billboard having thereon an advertisement which is formed from letters, characters, pictures, or combinations of the same, either silhouetted or outlined with electric lights.

ESTABLISHED GRADE: The sidewalk or alley elevation along the property line as established by public improvements.

FACTORY: A building used for manufacturing articles by machinery.

FAMILY: Any number of individuals preparing their food in common and living together as a single house-

keeping unit, but not including a group of more than eight (8) individuals unrelated by blood or marriage.

FIREPROOF OPENING: An opening which is equipped with either fire-doors or fireproof windows.

FLAT BUILDING: See "Apartment House."

GARAGE: A building, or portion, thereof, in which a motor vehicle is kept for storage, repair or for any other purpose, except that it shall not be considered to include a building, or portion thereof, in which the only motor vehicles kept are in transit or are kept temporarily during the daylight hours only for changing of tires or batteries, or are unused motor vehicles temporarily in storage and containing no inflammable fuel.

Size B GARAGE: One having a total floor area not to exceed five hundred fifty (550) square feet.

Size A GARAGE: One having a total floor area in excess of five hundred fifty (550) square feet.

GAUGE: The term "gauge," when used in this ordinance with reference to the thickness of sheet metal, refers to Birmingham Wire Gauge when the gauge number indicated is from 0000 to 9, inclusive, but refers to United States Standard Gauge when the gauge number is from 10 to 38, inclusive.

GRADE: See "Established" and "Natural Grade."

HABITABLE ROOM: Any room occupied in a place of habitation, refuge or detention, as a kitchen, dining room, living room, parlor, bedroom, library, etc., in distinction from a closet, bathroom, water closet room, corridor, laundry, furnace or boiler room, storage room, or other utility room.

HABITATION, PLACE OF: Residences, hotels, apartment houses, flats, boarding or lodging houses, dormitories and clubs.

HARD PLASTER: A wall plaster made of gypsum with which may be ground and mixed sand, fibre, asbestos, wood pulp or other suitable aggregate, or a plaster made of cement mortar and lime putty.

HOSPITAL: Any building for housing sick persons, including maternity hospitals, sanitariums, etc.

HOTEL: A building in which is conducted the business of lodging the public and which is occupied by more than six (6) guests or lodgers.

HOUSEBOAT: A building constructed on a float and not equipped with any motive power.

INSPECTOR: The Superintendent of Buildings of the City of Seattle, or any of his duly authorized assistants.

LIFE OF PERMIT: The length of time, measured from the date of the issuance of a permit, during which it is lawful to carry on, under the authority of said permit, the work of constructing, altering, repairing, removing or demolishing of any building or other structure or equipment. The expression, however, shall not apply to the period of time during which any structure or premises may be used for the occupancy indicated on the permit.

LOT: A sub-division of a block, as shown by a recorded plot of an addition to, or sub-division of, the City, or any portion of land, whether plat-

ted or unplatted, considered as a unit of property and described by metes and bounds; if one or more lots are built upon as a unit of property, they shall, for the purpose of this ordinance, be considered as a single lot.

LOT LINE: The boundary line of a lot.

MASONRY: Brick, stone, tile or terra cotta laid in mortar or concrete.

MOTOR VEHICLE: A vehicle which is self-propelled by power other than muscular, except a vehicle running on rails.

NATURAL GRADE: The undisturbed natural surface of the ground.

OCCUPIED: The word "occupied" shall be considered to include the phrase "designed to be occupied" and the phrase "intended to be occupied."

OFFICE BUILDING: A building, the whole or larger part of which is used for office purposes, and no part of which is used as sleeping rooms except for the janitor and his family.

OPEN LOT: A lot bounded on all sides by street or alley lines.

OWNER: Any person having title to, or control as guardian or trustee of, a building or property.

PARTY WALL: A wall used, or designed to be used, in common by two buildings.

PENT HOUSE: A room constructed above the roof of a building and used exclusively to give head room above a stair, to house elevator machinery, or provide working space above the elevator sheaves.

PERSON: One or more natural persons of either sex, association, co-partnerships or corporations, whether acting by themselves or by a servant, agent or employee; the singular number shall be held and construed to include the plural, and the masculine pronoun to include the feminine.

PUBLIC HALL: A corridor or passage way used in common by all of the occupants of a building.

RESIDENCE: A detached building occupied exclusively as a dwelling place of one family, and the usual accessory occupancies.

RETAINING WALL: A wall subjected to lateral pressure.

REFUGE--PLACES OF: Hospitals, asylums, almshouses, buildings for housing the aged, infirm, imbeciles, children or delinquents.

SELF-CLOSING DOOR: One having a mechanical closing device which is not restrained in its action by a fusible link or otherwise, but which keeps the door closed at all times when not in use.

STABLE: A building occupied by cattle, sheep, goats or beasts of burden.

STORAGE BUILDING: A building used wholly or in part for the display or sale of goods, wares or merchandise.

STREET: Any public thoroughfare other than an alley, as herein defined.

THROUGH LOT: A lot running from street to street, but not located on a street corner.

VENEER: An outer surface of brick, stone, concrete, tile or metal placed on a wall for decoration or protection.

VENT SHAFT: Any part of a lot or the space above it which is unoccupied from the ground to the sky or from an intermediate floor to the sky and which is not of large enough

dimensions to comply with the court requirements, as set forth in this Code.

WALL—BEARING: A wall designed to carry, in addition to its own weight, some portion of the roof or floors of a building.

WALL—NON-BEARING: A wall designed to carry only its own weight.

WALL—CURTAIN: A non-bearing wall built between columns and extending through two (2) or more stories without intermediate support.

WALL—FILLER: A wall built

between columns and supported at each floor by beams, girders or slabs.

WAREHOUSE: A building, or portion thereof, used principally for the storage of merchandise.

WINDOW—AUTOMATIC: See "Automatic Door or Window."

WIRE-GLASS: Glass not less than one-quarter ($\frac{1}{4}$) inch thick, containing wire fabric.

WORKSHOP: A building, or portion thereof, in which articles of merchandise are manufactured or repaired wholly or principally by hand, including garages or portions thereof, in which motor vehicles are repaired.

PART 2 DISTRICTS AND CLASS OF BUILDINGS

Section 201. There shall be four Building Districts, named and defined as follows: First Building District, Second Building District, Third Building District and Fourth Building District.

(The map shown in the appendix is intended to show building districts, and paragraphs 202 and 205, both inclusive, which specifically define such districts are therefore deemed superfluous to the general public and are omitted.)

Section 210. There shall be four (4) classes of buildings, named as follows: Fireproof buildings, mill buildings, ordinary masonry buildings and frame buildings.

Except as otherwise provided, all buildings hereafter constructed in any building district shall be of the class and height herein required for the respective district.

Buildings in the first building district shall be either fireproof buildings, mill buildings not higher than six (6) stories, or ordinary masonry buildings not higher than one (1) story.

Buildings in the second building district shall be either ordinary masonry buildings, not higher than two (2) stories, mill buildings or fireproof buildings.

Buildings in the third building district shall be either fireproof buildings, mill buildings, ordinary masonry buildings, frame dwellings not higher than two (2) stories, or other frame buildings not higher than one (1) story if roofed with shingles, and not higher than two (2) stories if roofed with three-ply prepared roofing or with roofing as required on mill buildings.

Buildings in the fourth building district shall be frame, ordinary masonry buildings, mill buildings and fireproof buildings.

CLASSES OF BUILDINGS AND WHERE PERMITTED

Section 211. The design, materials or workmanship required for any particular class of buildings may be used in whole or in part any lower class of buildings if approved by the Superintendent of Buildings.

A building of a higher class than is required for the building district in which it is located shall only be required to have the essential structural features of its class, and such buildings shall at least comply in other respects with the requirements of buildings in said district; provided, however, that fireproof buildings over ten stories high shall comply with the requirements for fireproof buildings.

FIREPROOF BUILDINGS AND MATERIALS DEFINED

Section 212. Fireproof buildings shall conform to the following requirements:

All materials used in the construction of fireproof buildings, except as otherwise provided, shall be waterproof, incombustible and fireproof.

Section 213. Fireproof materials shall mean materials which, when used for building purposes shall, in addition to all other requirements, be fire-resisting, incombustible, non-fusible and waterproof under conflagration conditions. Under such conditions they shall not consume, disintegrate, or distill, but shall retain their normal forms and positions, together with adequate strength for the purposes for which such materials are used.

Conflagration conditions shall be considered to be a continuous heat lasting four hours, between the temperature of 1500 degrees and 1700 degrees Fahr., followed by a flood of water for five minutes applied under average fire hose conditions.

Section 214. Fireproof materials are burned brick, dense tile, porous terra cotta, face terra cotta, mass concrete, reinforced concrete ceramic tile, locked or riveted sheet metal finish, wood finish covered with locked or riveted sheet metal, wire glass in metal covered frames, steel and iron sections when fireproofed and any other materials approved by the Superintendent of Buildings after tests as defined by law.

Section 215. Incombustible materials shall mean materials which, when used for building purposes shall not melt, distill or support combustion, but may lose their normal strength, forms and positions, when subjected to a heat of 1000 degrees Fahr., for one hour followed by a flood of water for one minute.

Section 216. Incombustible materials are wrought, rolled or cast metals when not fireproofed, stone, artificial stone; plaster blocks, cement mortar, rock-asphalt, cinder concrete, plaster on metal lath and metal stud-



ding; metal lath and thin wood stud-
ding plastered solid; $\frac{1}{4}$ inch wired
glass and vault lights when approved
by the Superintendent of Buildings,
and such other materials as may be
approved by him after tests as pro-
vided by this Code.

No plaster of paris, sulphate of
lime, coal, saw-dust, coke or partly
consumed material shall be used
where fireproof materials are re-
quired, except that plaster of paris
and sulphate of lime may be used in
wall plaster and as a gauge for mor-
tar.

FIREPROOF BUILDING CON- STRUCTION DESCRIBED

Section 217. In fireproof build-
ings, all exterior walls and the walls
of all exterior and party line courts
shall be of masonry or of masonry
in combination with iron or steel. All
floors and roofs shall be constructed
of brick arches, dense tile or porous
hollow terra cotta arches, mass con-
crete arches, reinforced concrete
slabs, or a combination of them.
Such brick, tile, terra cotta,
mass concrete arches, or combination
arches shall comply with regulations
established by the Superintendent of
Buildings based on tests as provided
by this Code, or in accord with the
"Standard Test for Fireproof Floors"
of the American Society for Testing
Materials.

Section 218. In fireproof build-
ings, all metallic structural members,
excepting the metal work of stairs,
marquees, tanks and tank supports
and similar minor structures shall be
protected by complete coverings of
fireproof and non-conducting mate-
rials. The outside of all metal col-
umns, beams, girders and all other
structural iron or steel in all street,
alley, court or party line walls, shall
be fireproofed solid. Such fireproof
and non-conducting materials shall
be burned brick, terra cotta, dense tile
or concrete poured in place. The sup-
porting metal in the shafts of struc-
tural iron, steel or reinforced concrete
columns and struts erected in position
where one or more sides are exposed
to the weather, or are on a party line
must be protected on all such exposed
sides by not less than 4 inches of con-
crete or 4 inches of hard burned brick
laid in cement mortar; or eight inches
of masonry laid in lime mortar; or
two inches of concrete next to the
metal and four inches of exterior ma-
sonry enclosing the concrete. Soffits
and exterior edges of beams exposed
to the weather shall be fireproofed
with not less than $2\frac{1}{2}$ inches of fire-
proofing. Structural iron or steel in
footings and foundations shall be
solidly covered by at least four inches
of concrete on all sides exposed to
the earth.

Section 219. In fireproof build-
ings, all columns, beams, girders and
other structural iron or steel, when
not on the outside of the street, alley
and court walls shall be solidly fire-
proofed beyond all parts of the metal
with not less than two inches of con-
crete, brick or terra cotta.

Section 220. In fireproof build-
ings, all edges or points of lugs,
brackets, rivets or similar structural
metal details shall be covered with
not less than one inch of fireproofing.
Where a facing such as stone, cast
or wrought metal of suitable thick-
ness is used which is not in itself

fireproof the structural iron or steel
shall be fireproofed solid independen-
tly of such facing with not less than
two inches of brick, dense tile, terra
cotta, or concrete. Plastering shall
not be considered as fireproofing ex-
cept as elsewhere provided. Where
concrete is used for fireproofing struc-
tural iron or steel substantial wire
mesh shall be wrapped about all ver-
ticle and diagonal members and about
the under parts of all horizontal mem-
bers.

Section 221. In fireproof build-
ings, steel roof construction, where
large steel trusses are used, may be
left un-fireproofed, provided such roof
construction is readily accessible for
inspection in every part. Space below
such roof construction shall not be
used for the sale, manufacture or
storage of any materials other than
fireproof or incombustible materials,
unless separated from such roof con-
struction by a fireproof ceiling.

Section 222. In fireproof build-
ings, finish floors of public halls and
stair platforms shall be of stone,
dense tile, ceramic tile, cement mor-
tar, cement composition, concrete or
other fireproof materials approved by
the Superintendent of Buildings, and
shall be at least two inches thick
above the top of the supporting
beams. Finish floors in other parts
of the building may be of wood on
wood sleepers, which shall be im-
bedded in concrete brought up full
and flush with top of the sleepers.

Section 223. Fireproof openings
metal covered shutters, or fitted with
metal or metal-covered frames and
closed by metal or metal-covered
doors or shutters, or by metal or
metal-covered sash glazed with $\frac{1}{4}$ -
inch wire glass, or by a combination
of such doors, shutters and glazed
sash. Sheet metal used for covering
frames, doors, shutters and sash
shall be lock-jointed or riveted.

Fireproof openings shall be re-
quired in fireproof buildings for all
openings into interior courts, party
line courts, and shafts not over 20
feet no inches wide and 500 square
feet in area; for all openings above
the main roof level; for all openings
in cellar or basement, all alley open-
ings, and all other openings which
are wholly or partly 15 feet no inches
or less from an alley, except that
fireproof openings shall not be re-
quired in street fronts, provided no
exposed woodwork shall project more
than four inches beyond the building
line.

Fireproof buildings other than ware-
houses, stores, workshops and fac-
tories, if immediately opposite to fire-
proof buildings across an alley, need
not have fireproof openings between
the basement ceiling and the roof,
except that, if there is no fireproof
building along the adjoining property
line, then the openings which are
wholly or partly 25 feet no inches or
less from such property line shall be
fireproof.

***Section 224.** In fireproof build-
ings, all basement and cellar parti-
tions and partitions enclosing stair-
ways and elevator shafts shall be
fireproof. Partitions enclosing the
parts of public hallways which im-
mediately adjoin stairs and elevators
shall be fireproof except as to open-
ings. All such partitions shall rest
upon the structural parts of the build-
ing and not upon wood floors. The

solid parts of such partitions shall be built of burned brick, dense tile, porous terra cotta, mass concrete or reinforced concrete. Other materials meeting the "Standard Test of Fireproofing Partitions" of the American Society for Testing Materials may be used if approved by the Superintendent of Buildings.

Section 225. In fireproof buildings, at least 50 per cent. of all partitions within each suite shall be incombustible or fireproof. All partitions separating one tenant from another, shall be incombustible or fireproof. In large spaces occupied by one tenant the incombustible or fireproof partitions shall be distributed. All incombustible or fireproof partitions which do not extend through the finished floor shall extend through the plaster of the ceiling and side-walls, or be otherwise attached to the walls and ceilings to the satisfaction of the Superintendent of Buildings. Incombustible partitions shall be built of metal lath, metal studs and cement plaster, artificial stone, composition blocks, sheet metal over solid wood or metal lath and thin wood studding plastered solid. Other materials may be used if they comply with the definition of incombustible materials, or if approved by the Superintendent of Buildings after tests, as provided by this Code.

Section 226. In fireproof buildings, the finish, trimmings and partitions within suites not required to be fireproof or incombustible may be of wood, or wood and glass, provided no concealed air spaces are formed thereby. No wood shall be used in elevator shafts or stairways except handrails and finish window stools in stairways; and no wood base or wainscot shall be used in stairways or in public hallways adjoining stairs or elevators.

HEIGHT OF FIREPROOF BUILDINGS

Section 230. The height of a building above the street shall be measured from the average of the established grades bounding the ground story of the building, to the ceiling of the highest story.

FIREPROOF BUILDINGS:

Section 231. In fireproof buildings, if metal or metal-covered trim and finish is used throughout, the reduction of allowed floor areas may start two stories higher than hereinbefore provided.

Section 232. Fireproof buildings shall comply with all other provisions of the Code relating to buildings in general or to fireproof buildings in particular.

MILL BUILDINGS

Section 236. Mill buildings shall conform to the following requirements:

In mill buildings all foundations, exterior walls and the walls of all exterior and party line courts shall be of masonry or of masonry in combination with iron or steel. The walls of all interior courts exceeding an area of 500 square feet or exceeding a width of 20 feet no inches shall be of masonry or of masonry in combination with iron or steel. All interior loads shall be carried to the foundations by walls or piers of masonry, or by columns, girders and beams of wood, reinforced concrete, iron or steel. Wood columns shall not be less than 10 inches in least dimension. Wood girders shall be not less than 8 inches in least dimension. Wood beams shall be not less than 6 inches in least dimension. Wood stair carriages shall be not less than 4 inches in least dimensions. Wood risers and treads shall be not less than 2 inches in least dimension.

Section 237. In Mill Buildings all steel or iron columns, wherever used, and all steel or iron beams and girders used in cellars or basements shall be fireproofed with two coverings of metal lath and plaster with a one-inch air space between, or fireproofed as required for fireproof buildings.

Section 238. In Mill Buildings, floors shall consist of an under and an upper floor. Under flooring shall be of splined, or tongued and grooved planks not more than 6 inches wide, dressed to a thickness of not less than 2 $\frac{1}{2}$ inches and spiked to joists; or the underfloor shall be constructed of not less than 2x4-inch members sized on one side and one edge, placed on edge and solidly spiked together.

On the underfloor shall be placed one layer of 15-pound, waterproof paper, lapped and turned up at all walls, partitions and columns on which may be placed sleepers as shallow as practicable, filled flush and full between with mineral wool or concrete or other approved fill or fire stop.

The finish floor shall be tongued and grooved flooring not more than 6 inches wide, nor less than $\frac{7}{8}$ -inch thick and laid diagonal or crosswise with the underfloor when practicable. The finish and underfloor shall not extend closer than $\frac{1}{2}$ -inch to the walls which are parallel to the underfloors. The $\frac{1}{2}$ -inch space shall be filled with oakum or other elastic and waterproof material. Satisfactory firestops shall be provided to prevent the passage of fire through the floors at the columns. Other kinds of flooring may be permitted by the Superintendent of Buildings where required for specialized uses, provided they have the strength, fire-resisting and waterproof qualities required by this Code.

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Section 239. In Mill Buildings, all floors shall be provided with gutters and scuppers for escape of water through outside walls as floor levels. All parapet walls shall be provided with scuppers over each down spout, not higher than the top of the lowest flashing. Gutters and scuppers may be omitted at floor levels in buildings used as places of habitation and public assembly and in other buildings if found impracticable by the Superintendent of Buildings.

Section 240. In Mill Buildings all roof planking shall be splined or tongued and grooved not more than 6 inches wide, spiked to the beams and dressed to a thickness of not less than $2\frac{5}{8}$ inches; or, it shall be not less than 2x4 inch members sized on one side and one edge, placed on edge and spiked solidly together.

The roof shall be covered with sheet metal, tar and gravel, asbestos tile or dense tile, laid in waterproof material, or other incombustible roofing, if approved by the Superintendent of Buildings after tests as provided by this Code. Tar and gravel roofing may be used for slopes under 15 degrees. Tar paper and asbestos or dense tile tarred or cemented may be used for slopes under 30 degrees. Sheet metal roofing may be used for slopes under 45 degrees. Fireproof materials and construction shall be used for slopes over 45 degrees.

Section 241. In Mill Buildings all partitions shall be constructed in one of the following methods: (a) Of two thicknesses of tongued and grooved plank not more than six inches wide, dressed to thickness not less than $1\frac{3}{4}$ inches, placed vertically with broken joints and solidly nailed together; (b) of one thickness of good material described in (a) and then lathed and plastered solid on both sides of partition; (c) laminated, of studding not less than 2x4 inches placed vertically, with edges to face of partition, joints broken, studs solidly spiked together and then lathed and plastered solid on both sides of partition, or covered with some other approved incombustible material; (d) of metal studs, metal lath and plaster of a solid thickness of $1\frac{3}{4}$ inches; (e) of wood studs not less than 1 inch thick, lathed on one side with metal lath, and on the other side with overlapping strips of metal lath covering the studs, the entire partition plastered solid with plaster finishing not less than 2 inches thick.

Section 242. In Mill Buildings walls of interior courts, and shafts other than for stairs and elevators elsewhere provided, having an area less than 500 square feet and a width of less than 20 feet no inches, shall be built of not less than $1\frac{3}{4}$ -inch plank, doubled, with broken joints, or of 2x4-inch studs spiked together as required for partitions. Such walls shall be covered on the exterior by incombustible or fireproof materials and have incombustible or fireproof openings. Such walls shall be continuous from above the main roof to the bottom of the shaft and shall not be cut off at the floor or ceiling levels.

Section 243. In Mill Buildings, walls and floors of spaces where heat is generated shall be fireproof. All openings shall be fireproof, and all door openings protected by approved automatic fire doors. The ceiling of

such places if not fireproof should be double, with a shallow air space between, and divided into small airtight compartments. The upper ceiling shall be metal lath and plaster applied directly to wood surfaces, leaving no air spaces. The lower ceiling shall be of metal lath and plaster hung on metal purlins and metal supports.

Section 244. In Mill Buildings there shall be no concealed air spaces in any part of the construction except as herein provided.

Low attic spaces of Mill Buildings used for offices and places of habitation or public assembly shall be allowed, provided the ceiling underneath such space be plastered on metal lath hung on metal supports of sufficient strength to carry a uniform live load of not less than 15 pounds per square foot. Or, it shall be of floor members as required for Mill Buildings. The Superintendent of Buildings may require such attic spaces to be supplied with approved automatic sprinklers and may require a minimum height of 2 feet no inches in such space.

Ceilings and walls may be lathed and plastered or covered with sheet metal or with wood ceiling boards when the same are applied directly to the surface without forming air spaces; or such walls and ceilings may be covered with metal lath and plaster or sheet metal leaving air spaces not more than $1\frac{1}{2}$ inches deep for piping or other utilities, provided such spaces are frequently firestopped into tight pockets to the satisfaction of the Superintendent of Buildings. Isolated concealed chases for piping and other utilities may be allowed in Mill Buildings provided such spaces are completely covered inside with sheet metal or metal lath and plaster, and provided such spaces are firestopped at every floor and ceiling with fireproof materials before being closed by sheet metal or metal lath and plaster, and provided they are approved by the Superintendent of Buildings. Sheet metal shall be applied with long nails or otherwise to the satisfaction of the Superintendent of Buildings.

Section 245. In Mill Buildings no woodwork shall be used on the outside of the exterior walls except window and door frames, doors, sash and store fronts, as hereinafter limited. No such exterior woodwork shall project more than four inches beyond the building line. Interior finish and trimmings may be of wood, provided they form no concealed air space. No woodwork shall be used above the main roof level unless it is constructed as required of partitions and covered with 30 lbs. asbestos paper and sheet metal, or metal lath and cement plaster, except water towers and tanks when not enclosed. The framework of such towers shall be of mill construction, except as elsewhere provided.

Section 246. In Mill Buildings all openings above the main roof level, and all openings in cellars, basements, boiler rooms, and other rooms where heat is generated shall be fireproof as defined for fireproof buildings.

Mill Buildings in any building district which adjoin existing fireproof buildings shall have all exterior and party line openings fireproof, which are within 25 feet no inches of the

fireproof building, except in street fronts. Mill Buildings in the Second Building District any part of which is built nearer than 44 feet no inches to a building line of the First Building District, and all Mill Buildings in that part of the Second Building District bounded by the center line of Washington Street on the north, the center line of Fifth Avenue on the east, the center line of King Street on the south, and the center line of Railroad Avenue on the west shall have all exterior openings fireproof throughout the building, except street fronts.

All Mill Buildings in the First Building District shall have all exterior openings fireproof except street fronts.

Section 247. In Mill Buildings approved automatic sprinklers shall be installed throughout all cellars, throughout all basements where any non-fireproof, combustible or inflammable materials are used, stored or manufactured, and throughout all boiler rooms or other parts of Mill Buildings of the First and Second Building Districts where heat is generated. All Mill Buildings in the Second Building District any part of which is built nearer than 44 feet no inches to a building of the First Building District, and all Mill Buildings in that part of the Second Building District bounded by the center line of Washington Street on the north, the center line of Fifth Avenue on the east, the center line of King Street on the south, and the center line of Railroad Avenue on the west, shall have approved automatic sprinklers installed throughout, except buildings or parts thereof used for places of habitation, refuge and detention or offices. All such sprinkler installations shall comply with regulations issued by the Superintendent of Buildings which shall not exceed the requirements of the National Board of Fire Underwriters. Roof tanks may be omitted in Mill Buildings where sprinklers are only required in cellars, basements, first stories, and in boiler rooms and other places where heat is generated.

HEIGHT OF MILL BUILDINGS

Section 248. No side of a Mill Building shall exceed an average of 80 feet no inches in height above the established grade along such side, nor be more than 90 feet no inches above such grade at any point. No Mill Building shall exceed an aver-

age of six stories nor exceed seven stories in any part. The height shall be measured from the established grade to the highest ceiling. In case such heights would exceed the heights allowed for fireproof buildings, then the heights shall be determined as required for fireproof buildings of the same occupancy.

Towers, spires, or other similar features may be built of mill construction if not more than 25 feet no inches square and constructed to meet the approval of the Superintendent of Buildings.

MILL BUILDINGS BLANKET CLAUSE

Section 249. Mill Buildings shall comply with all other provisions of the Code relating to buildings in general or to Mill Buildings in particular.

ORDINARY MASONRY BUILDINGS

Section 255. Ordinary Masonry Buildings shall conform to the following requirements: Ordinary Masonry Buildings shall have all foundations, exterior walls, party line walls and the walls of exterior and party line courts, constructed of masonry, or masonry, iron and steel.

Section 256. In ordinary Masonry Buildings, the walls of interior courts and shafts shall be continuous from above the roof to the bottom of the shafts. They shall be constructed of two thicknesses of 1 $\frac{3}{4}$ -inch matched planks not more than 8 inches wide, put on vertically with broken joints. Or such walls may be constructed of 2x4-inch studs placed vertically and spiked solidly to each other flatwise. The outside shall be covered with sheet metal properly lapped or lock-jointed, or with metal lath or approved plaster board and $\frac{1}{2}$ inch of cement plaster. Or, such walls may be constructed of not less than 3x4 inches open space studs firestopped four times in the height of each story, filled solid with masonry at each floor and at the roof, and lathed with metal lath or approved plaster board on both sides and covered with cement plaster.

Section 257. In ordinary Masonry Buildings, the interior frame and finish may be of wood, and the frame shall be of sufficient strength to carry its loads safely. Interior loads above the ground floor may be carried on bearing stud partitions except that not more than four floors and a roof may be so carried. Interior parti-

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tion walls in dwellings when not more than two stories high and 30 feet no inches long may be built of 4-inch brickwork if satisfactory to the Superintendent of Buildings.

Section 258. In ordinary Masonry Buildings, bearing walls and partitions shall be constructed of not less than 2x4 studs, and if carrying more than one floor and roof, not less than 3x4 inches or 2x6-inch studs. Stud shall be placed with their greater dimensions crosswise of the partitions and not more than 16 inches on centers. Non-bearing partitions may be constructed of 2x4-inch studding set flat and spaced not more than 16-inch centers. Stud-bearing partitions shall rest on walls or girders, or be placed directly over other bearing partitions; or the floor joists of the floor below shall be sufficiently strengthened to support the concentrated load. If plates and sills are used for partitions they are to be not less than 2x4 inches.

Section 259. In ordinary Masonry Buildings, the floor and roof joists shall have a bearing of at least 4 inches at each end, or its equivalent, and shall not be less than 2 inches thick and of sufficient size to carry the load safely. Joists carrying the partitions shall be doubled or otherwise sufficiently strengthened. Joists having a span of 8 feet no inches or more shall be bridged. Rows of bridging shall be not more than 8 feet no inches apart. The cross bridging shall be 1x3 inches unless the live load is over 75 pounds to the square foot, when the bridging shall be 2x3 inches.

Section 260. In ordinary Masonry Buildings, solid bridging not less than two inches thick and the full width of the studding shall be cut in between the studding at each floor and not more than 6 feet no inches in height apart, and shall be cut in between the studding at all ceilings and just below where the studs are connected to the rafters or roof joists. When plates and sills are used, bridging at floors and ceilings may be omitted.

Floor and roof joists shall have a solid firestop of masonry over all bearing walls and partitions; or they shall have solid bridging not less than 2 inches thick by the full width of the joist and cut in between the joists with close-fitting joints. Sheet metal, mortar, mineral wool or other

incombustible material shall be placed around all pipes or flues where they pass through partitions, floors and ceilings in such a manner as will completely close the opening. On all plastered masonry walls where furring is used the spaces between the furring shall have firestops at every floor and ceiling and midway between.

Section 261. In ordinary Masonry Buildings, floors shall be of at least two thicknesses of flooring, laid at an angle with each other when practicable. Roof joists shall be tightly boarded, with matched sheathing not more than 8 inches wide nor less than 1 inch thick, covered with one layer of asbestos paper, on which shall be placed burned or asbestos tile, slate, or asbestos shingles, sheet metal, tar and gravel roofing, or other incombustible roofing approved by the Superintendent of Buildings after tests, as provided by this Code. Mansard or other roofs on exterior or party line court walls having a slope of more than 60 degrees shall be constructed of fireproof materials. Tar and gravel roofing shall not be used on a slope of more than 15 degrees.

Section 262. In ordinary Masonry Buildings, no wooden girder, rafter, joist, plate sill or other member shall be cut or bored for pipes or other purposes on the under side. Such members may be cut on the upper side and studs and posts may be cut near the ends, provided they are cut in such a manner as not seriously to impair their strength and provided they are sufficiently reinforced.

Section 263. In ordinary Masonry Buildings, all partitions and ceilings shall be lathed and plastered with hard plaster at least $\frac{1}{2}$ inch thick, or covered with sheet metal; and all basement and cellar ceilings, hall ceilings, stair soffits, stairways, passages and the side of partitions forming public halls shall be plastered on approved plaster board or metal lath; or, shall be covered with sheet metal lapped 2 inches or lock-jointed. Sheet metal shall be applied with long nails or otherwise, as approved by the Superintendent of Buildings.

Such sheet metal shall be pressed, corrugated or stamped of not less than 30 gauge and applied directly against a good surface of sheeting. Such sheet metal shall not be used as a substitute for plastering in places of habitation, refuge or detention or in places of public assembly.

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HEIGHT OF ORDINARY MASONRY BUILDINGS

Section 264. No side of an ordinary Masonry Building shall exceed an average of 60 feet no inches in height above the established grade along such side, nor be more than 70 feet no inches above such grades at any point, nor exceed an average of five stories high, nor exceed six stories in any part. The height shall be measured from the established grade to the highest ceiling.

Towers, spires or other similar features may be built of ordinary masonry if not more than 20 feet no inches square and constructed to meet the approval of the Superintendent of Buildings.

Section 265. One-story ordinary Masonry Buildings not over 20 feet no inches high may be built in the Second Building District, but if built on any street, alley or line dividing the Second Building District from the First Building District or within 10 feet no inches of such dividing line, they shall have fireproof openings and automatic sprinklers as required of mill buildings in general in the Second Building District.

Ordinary masonry dwellings not over two stories and an attic in height may be built in the Second Building District, but if built on any street, alley or line dividing the Second Building District from the First Building District, or within 10 feet no inches of such dividing line, they shall have approved automatic sprinklers and fireproof openings in boiler rooms as required of mill buildings.

ORDINARY MASONRY BUILD- ING BLANKET CLAUSE

Section 266. Ordinary Masonry Buildings shall comply with all provisions of the Code relating to buildings in general or to ordinary Masonry Buildings in particular.

FRAME BUILDINGS

Section 270. Frame buildings shall conform to the following requirements:

Frame buildings may have their frames and finish built of wood and the frame shall be of sufficient strength to carry its loads. The frames may be of sills, posts, girts, plates and rafters, or ordinary balloon framing of studs and joists. Double plank construction may be used for the frame of two-story buildings and single plank construction may be used for the frame of one-story buildings, when approved by the Superintendent of Buildings.

Section 271. In frame buildings, bearing walls and partitions shall be constructed of not less than 2x4-inch studs, and if carrying two floors and roof not less than 3x4-inch or 2x6-inch studs. Studs shall be placed

with their greater dimension crosswise of the partition and not more than 16 inches on center. Non-bearing partitions may be constructed of 2x3-inch studding set flat and spaced as required for bearing partitions. Stud-bearing partitions shall rest on walls or girders, or be placed directly over other bearing partitions; or the floor joists of the floor below shall be sufficiently strengthened to support the concentrated load. If plates and sills are used for partitions they are not to be less than 2x4 inches.

Section 272. In frame buildings, floors and roof joists shall have a bearing of at least 4 inches or its equivalent at each end and shall not be less than 2 inches thick and of sufficient size to carry the load safely. Joists carrying partitions shall be doubled or otherwise sufficiently strengthened. Joists having a span of 10 feet no inches or more shall be bridged. Rows of bridging shall be not more than 10 feet no inches apart. Rows of bridging shall be 1x3 inches unless the load is over 75 pounds to the square foot, when the bridging shall be 2x3 inches.

Section 273. In frame buildings, solid bridging not less than 2 inches thick and the full width of the studing shall be cut in between the studgings at each floor, and midway between the floor and the ceiling of each story.

Floor and roof joists shall have a solid firestop of masonry over all bearing walls and partitions; or they shall have solid bridging not less than 2 inches thick by the full width of the joists and cut in between the joists with tight joints. Sheet metal, mortar, mineral wool or other incombustible material shall be placed around all pipes or flues where they pass through partitions, floors and ceilings in such a manner as will completely close the opening, if any.

Section 274. Buildings having the upper story or stories of wood construction, or having wood gables or hipped roofs of wood and the ground story constructed with masonry walls, shall be considered as frame buildings. Buildings, any portion of the exterior wall of which is of wood construction veneered with stucco, sheet metal or masonry, shall be considered as a Frame Building. Masonry veneer shall not be less than 4 inches thick, and shall be anchored to the frame and firestopped to meet the approval of the Superintendent of Buildings.

Every building having dormer or bay windows, balconies, cornices or mouldings constructed of wood not entirely covered with sheet metal with locked joints, or with slate or tile, or with metal lath and cement mortar, or having all or any portion

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of its roof or the openings thereof not covered with incombustible or fireproof material, shall be classed as a Frame Building.

Section 275. No wooden girder, rafter, joist, plate, sill, or other horizontal or inclined member shall be cut or bored for pipes or other purposes on the under side. Such members may be cut on the upper side, and studs and posts may be cut near the ends, provided they are cut in such a manner as not seriously to impair their strength and provided they are sufficiently reinforced.

Section 276. Every frame building used, in whole or in part, as a place of assembly, office building or place of refuge, detention or habitation other than a residence, shall have all walls, partitions and ceilings lathed and plastered. If such building is two (2) stories or more in height, the sides of partitions adjoining public halls, corridors and stairways, and all stair soffits and hall ceilings shall be lathed with either metal lath or plaster board instead of wood lath.

Frame residences more than one (1) story high shall have all habitable rooms, bathrooms, halls and corridors plastered. This shall be considered to require plastering in all buildings commonly known as one and one-half (1½) story residences.

In frame buildings, all interior vent shafts and interior courts less than ten (10) feet across in any direction must be protected on the inside of the court or shaft by walls which are first tightly sheathed and then covered with metal lath and plaster, or tightly sheathed and covered with plaster board and sheet

metal, either lock-jointed or lapped one and one-half (1½) inches.

When buildings which are herein required to be plastered are constructed on piles above the water or on floats and are consequently swayed by tides, waves or vessels to such an extent that plaster could not be maintained on walls, partitions and ceilings, there shall be used in lieu thereof two (2) thicknesses of plaster board placed with broken joints or one (1) thickness of one (1) inch lapped or tongued and grooved wood sheathing covered with one (1) thickness of plaster board.

Section 277. Every Frame Building two stories or more in height, partly used as a stable, store, warehouse, factory or work shop, and partly used as a place of public assembly, or a place of habitation, refuge or detention, shall have partitions of halls, passageways and stairways constructed as required for partitions in Mill Buildings, or of incombustible stud construction, unless otherwise in this Code provided, and the ceilings thereof shall be made fire resistive as approved by the Superintendent of Buildings.

Section 278. All cellar and basement ceilings of Frame Buildings used as places of habitation, refuge or detention, or as places of public assembly, except in dwellings and buildings appurtenant thereto, shall be lathed and plastered or covered with metal, lock-jointed or lapped 2 inches; provided, however, that in buildings where the floors forming such ceilings are constructed as required of Mill Buildings such metal or lath and plaster may be omitted.

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HEIGHT OF FRAME BUILDINGS

Section 279. No side of a Frame Building shall exceed an average of 40 feet no inches in height above the established grade along such side, nor be more than 50 feet no inches above such grade at any point, nor exceed an average of three stories, or exceed four stories in any part. The height shall be measured from the established grade to the highest ceiling of mansard or flat-roofed buildings and to the average height of pitch-roofed buildings.

Towers, spires or other similar features may be built of frame construction, if not more than 15 feet no inches square and if constructed to meet the approval of the Superintendent of Buildings.

Section 280. One-story Frame Buildings not over 20 feet no inches high and frame dwellings not over two stories and an attic in height may be built in the Third Building District, but if built on any street, alley or line dividing the Second Building District from the Third Building District, or within 10 feet no inches of such building line, they shall be roofed and plastered as required of Ordinary Masonry Buildings.

FRAME BUILDINGS BLANKET CLAUSE

Section 281. Frame Buildings shall comply with all other provisions of the Code relating to buildings in general, or to Frame Buildings in particular.

PART 3 STRUCTURAL REQUIREMENTS

Section 301. All structures shall be designed to resist the dead and live load, wind and other applied forces, without exceeding the allowable working stresses in building materials, as prescribed by this Code.

Section 302. The dead load of a structure is its own weight, including partitions and permanent fixtures and mechanisms.

STRUCTURAL REQUIREMENTS

Section 303. Live loads shall comprise all loads other than dead load. Floors and roofs shall be designed for the actual live load intended to be applied, subject to the provisions hereinafter set forth.

Section 304. The minimum live load required on each square foot of area shall be as follows:

25 pounds for: Roofs, marquees, and permanent awnings, horizontal area.

40 pounds for: Places of habitation, except rooms containing over five hundred (500) square feet of floor area, and places of refuge.

50 pounds for: Office buildings above the ground floor, places of detention, and class rooms with fixed seats.

60 pounds for: Garages with floor area not to exceed five hundred fifty (550) square feet and not used for trucks.

75 pounds for: Where seats are fixed in places of public assembly, except class rooms; stables and rooms containing over five hundred (500) square feet of floor area in places of habitation.

100 pounds for: Where seats are not fixed in places of public assembly, stores and ground floors of hotels and office buildings.

125 pounds for: Garages, except as elsewhere herein provided, warehouses, factories and workshops, except in special and unusual cases to be approved by the Superintendent of Buildings.

Garages for motor truck storage shall be designed for the actual wheel loads of the trucks to be stored, with a minimum uniform load of 125 pounds per square foot.

150 pounds for: Armories, drill rooms and riding academies.

Stairways shall be designed for not less than fifty (50) pounds per square foot, except for places of public assembly, which shall be designed for

not less than seventy-five (75) pounds per square foot.

All buildings hereafter erected and not herein specifically described shall be constructed amply strong for the purpose intended.

Plans for all buildings shall show the location of heavy machinery, or other unusual loads, if any, and the live load per square foot the building is designed to carry under full working conditions.

Section 305. The specified live loads, other than roof loads, and the loads of heavy machinery, etc., may be reduced for garages and all other buildings, except warehouses, as follows: Ten per cent. (10%) on beams, girders and columns carrying one hundred (100) square feet of contiguous floor area; fifteen per cent. (15%) on beams, girders and columns carrying two hundred (200) square feet of contiguous floor area; twenty-five per cent. (25%) on beams, girders and columns carrying three hundred (300) square feet, or more, of contiguous floor area. For intermediate floor areas the reduction shall be interpolated.

For concrete flat slab construction, reduction of live loads are permitted in columns, piers and foundations only.

Columns, piers and foundations in garages and other buildings except warehouses need not be designed for a greater percentage of the live load, as above modified, than indicated below:

Roof and top floor, one hundred per cent. (100%) of live load; second floor from top, ninety-five per cent. (95%); third floor from top, ninety per cent. (90%), and and for each succeeding floor, five per cent. (5%) less until a reduction of fifty per cent. (50%) of the modified live load is reached, which shall be the minimum reduction.

Section 306. Factories, workshops, warehouses and Size A garages shall have signs showing the allowed live load. Such signs shall be of wrought, cast, or enamelled metal, with figures at least four (4) inches high. All such signs shall be located at least seven (7) feet above the floor, and shall be plainly visible at all times. There shall be at least one such sign to every seventy-five hundred (7500) square feet, or fraction thereof, of floor area. The location of all load

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signs shall be subject to the approval of the Superintendent of Buildings.

Whenever the Superintendent of Buildings shall have reason to believe any building heretofore or hereafter constructed is being subjected to greater loads upon any floor than said floor is designed to carry, it shall be his duty to make an examination of such building and compute the loads which each floor thereof is designed to carry safely. The owner of said building must then place load signs, as described elsewhere in this section, showing the approved safe load.

It shall be unlawful for any person to place any greater load on any floor of any building than that specified in the load sign. It shall be unlawful for any person to remove, mutilate, destroy, or conceal any load signs erected in accordance with this section.

Section 308. Eccentric loading of foundations, walls, piers, or columns must be considered in calculating pressure on soil and stress in structural materials.

Section 309. All buildings and parts thereof, unless otherwise expressly provided in this code, shall be designed to resist a horizontal wind pressure of not less than twenty (20) pounds per square foot of projected surface. In no case shall the overturning moment due to wind pressure exceed fifty per cent. (50%) of the moment of stability due to dead load.

Section 310. Walls retaining earth shall be designed by the equivalent fluid pressure method. The assumed fluid weights shall be not less than the following:

Twenty-five (25) pounds per cubic foot for walls retaining public property; for retaining walls of all buildings except residences, and for all other walls retaining more than eight (8) feet height of earth which in case of failure would result in damage to buildings or adjacent property.

Fifteen (15) pounds per cubic foot for walls eight (8) feet or less in height, retaining private property, or for walls over eight (8) feet high which in case of failure would result in no damage to buildings or adjacent property.

In cases where the earth is very firm and able to hold its shape, and has good natural drainage, a permit for a face wall may be issued, provided no damage would result to buildings or adjacent property in case of failure of the wall.

The footings of all retaining walls shall be carried down to solid bearing, but in no case shall the bottom of the footing be less than twelve (12) inches below the surface of the earth at the front of the wall.

All retaining walls shall be protected against water pressure by a suitable drainage system.

Section 311. All materials used in buildings shall be of good quality for the purpose for which they are intended to be used. Each material must be free from imperfections whereby its strength or durability may be impaired. For the purpose of this ordinance the standards of quality, strength and durability herein defined shall be regarded as the minimum standards of their respective kinds of materials, except as otherwise specified.

Section 312. The strength of mate-

rials and allowable unit stresses are based upon the standards of quality prescribed for the respective materials, and upon the assumption that all structural details and workmanship shall be in conformity with good standard practice.

Section 313. The Superintendent of Buildings may require structural materials of whatever nature to be subjected to test to determine their character and quality by methods prescribed by law, or in their absence by methods established by good engineering practice.

No new variety of structural material shall be used in any structure until it has been tested and found to satisfy the conditions and tests by ordinances required of materials used for like purposes.

Section 314. Foundations shall not overload the soil upon which they rest. Loam or soil containing organic matter shall not be used to support the foundations of buildings more than one story high. The kind of soil upon which any of the following unit loads is permitted must be of sufficient thickness and extent to distribute that load over the requisite area of the underlying soil.

Section 315. Where no tests of the sustaining power of the soil are made, different soils, excluding mud at the bottom of the footings, shall be deemed to sustain safely not more than the following loads to the superficial foot, namely:

Soft clay or other soil, one ton.

Ordinary clay and sand, together in layers, two tons.

Clay or fine sand, firm and dry, two and one-half tons.

Very firm, coarse sand, stiff gravel or hard clay or hardpan, three and one-half tons to five tons.

Section 316. When in doubt as to the safe sustaining power of the earth upon which a building is to be erected, the Superintendent of Buildings may order auger or other approved borings to be made, or direct to be tested the sustaining power of the soil and at the expense of the owner of the proposed building.

Section 317. When borings or tests, as provided in the preceding section, are made, the Superintendent of Buildings shall be notified so that he may be present, either in person or by representation.

Section 318. Piles shall be of sufficient number and so spaced as to equalize the loads and make a stable foundation for the proposed load.

The heads of piles shall be protected against splitting while being driven, and shall be imbedded in concrete or covered with a grillage so proportioned that in transmitting the load from the structure to the piles, the stresses in the materials shall not exceed those prescribed by law.

Section 319. Timber piles for the purpose of supporting a wall, pier or column shall be of good material, reasonably straight, at least six (6) inches in diameter at the small end, twelve (12) inches at the butt, shall be spaced not less than thirty (30) inches nor less than two diameters of the butt from center to center, and shall be driven to a reasonably good refusal.

Section 320. The tops of all timber piles shall be cut off below the surface of permanent saturation. Concrete capping shall extend below the

tops of the piles for at least six (6) inches, and at least six (6) inches in width outside of the piles and shall be at least eighteen (18) inches in total thickness.

Section 321. The safe load which shall not be exceeded on a timber pile shall be determined by the following formula:

$$F = \frac{2 WH}{P+0.1} \text{—for steam hammer:}$$

$$F = \frac{2 wh}{P+1} \text{—for drop hammer.}$$

In which formula

P=penetration in inches, under last blow.

H=fall in feet.

W=weight of hammer in pounds.

F=safe load in pounds.

The maximum load on a timber pile should not exceed 50,000 pounds, nor 80 per cent. of the allowable compressive stress as a post computed upon the area of the middle section.

A wood follower shall not be used in determining the safe load.

Section 322. All concrete used for piles shall conform to the specifications for reinforced concrete, and be not leaner than a 1:2:4 mix.

Section 323. Plain concrete piles shall be moulded in place by methods which are reasonably certain to secure good full sized piles.

Section 324. Reinforced concrete piles properly designed to resist the shock of handling and driving, if driven with a cushion to lessen the shock, or if put down by a water jet, may be moulded previous to driving.

The allowable working load on concrete piles shall in no case be more than as determined by tests, as hereinafter provided, nor be more than four hundred fifty (450) pounds per square inch on the concrete at the middle section, plus six thousand, seven hundred fifty (6,750) pounds per square inch for steel reinforcement. Steel reinforcement shall not exceed five per cent (5%) of the area of the pile at the middle section.

Section 325. Wherever concrete piles or jetted timber piles are used, their bearing power shall be determined by loading test piles. Tests shall be made upon at least two piles put down and situated under substantially working conditions, including the proximity of other piles.

The allowable working load on a jetted timber pile, or on a concrete pile, shall in no case be more than two-thirds of the load which can be sustained for forty-eight (48) hours with a settlement of not exceeding one one-hundredth (1/100) inch per ton of load applied, nor shall the working load produce any observable settlement whatever in the succeeding forty-eight (48) hours.

Section 326. In all cases where foundations are built in wet soil, it shall be unlawful to build the same unless trenches in which the work is being executed are kept free from water by bailing, pumping or otherwise, until after the completion of work upon the foundation. In all cases where practicable, a connection with the city sewer shall be established before beginning the work of laying foundations.

Section 327. Foundations for masonry buildings more than one story high shall extend at least one foot, six inches (1 ft. 6 in.) below the sur-

face of the ground upon which they are built, and in the case of all buildings one hundred feet 0 inches (100 ft. 0 in.) or more in height, foundations shall extend at least to the depth drained by sewers in the adjacent streets or alleys, unless such sewers are at a greater depth than ten feet 0 inches (10 ft. 0 in.) below the sidewalk grade. In that case, such foundations need not extend to a greater depth than ten feet 0 inches (10 ft. 0 in.), provided sound, hard soil is found at that depth.

Every building erected without cellar or basement shall have, in the external walls below the first floor level, not less than four (4) ventilators equal in total area to one-tenth (1/10) of one per cent (1%) of the ground area of the building and so placed as to insure cross currents of air and no floor joist shall be less than eighteen (18) inches above the ground.

Section 328. Excavations in any building for the foundations of machinery or for a cistern, pit, tunnel, sewer, or other pipe line, running parallel with a foundation wall or the side of a supporting pier, shall not be cut below the bottom of the footings of such wall or pier when such excavations extend within 1 ft. 0 inches of the angle of repose or natural slope of the foundation soil underneath such footings, provided further that excavations for the foundations of machinery shall in no case be made within 1 foot 0 inches of any wall, pier or footing.

No wall, pier or foundation of any building shall be cut, pierced, mutilated or undermined in any way that will endanger or seriously weaken the structure.

Section 329. Any person excavating for the purpose of laying the foundation of any building, or for any other purpose whatever, shall protect and support all adjoining land, buildings, streets, alleys and sidewalks from damage, by underpinning, cribbing or shoring, or such other device as will prevent all settling, cracking or damage whatsoever.

Section 330. Every building hereafter erected which is located adjacent to any street or alley containing any then existing watermain, water tunnel, sewer, conduit tunnel, subway or other underground construction, owned or controlled by the City, shall be so constructed that the foundation or superstructure thereof shall not be directly supported by any such underground construction.

Section 331. Foundations, unless otherwise expressly provided, shall be constructed of concrete, dimension stone or rubble stone, sewer or paving brick, iron or steel imbedded in concrete, or piles, or a combination of any of the same. All masonry foundations and all other masonry in contact with earth shall be laid in cement mortar.

Section 332. Footings of stone shall have the upper and lower surfaces of each approximately parallel and the stone shall be close fitted and bedded solid. Footings of brick shall be of hard burned brick, and shall not be reduced more than two and one-half (2½) inches to each two courses.

Footings of stone or unreinforced concrete shall not be reduced more

than ten (10) inches to the foot in height, and all foundations so constructed shall rest upon solid ground or piling.

Section 333. Masonry foundation walls or piers shall be provided for frame dwellings more than thirty feet no inches (30 ft. 0 in.), or more than two stories high; for all other frame buildings more than twenty feet no inches (20 ft. 0 in.), or more than one story high, and for one story frame buildings used as places of assembly, refuge or detention; provided, however, that masonry foundation walls or piers shall be used in all cases where the occupancy, location or construction of the building would render the structure unsafe without them.

All masonry foundation walls or piers shall be kept at least four (4) inches above the surrounding ground. Masonry foundation walls for frame buildings not more than thirty feet, no inches (30 ft. 0 in.), nor more than two stories high shall be, if of brick or stone, not less than eight (8) inches thick, and if of unreinforced concrete, not less than six (6) inches thick.

Masonry foundation walls for frame buildings more than thirty feet, no inches (30 ft. 0 in.) or two stories high shall be, if of brick or stone, not less than twelve (12) inches thick, and if of unreinforced concrete, not less than ten (10) inches thick.

Frame buildings veneered with masonry shall have masonry foundation walls upon which the veneer shall directly rest. Buildings over tide or shore lands may rest on piles.

Veneered buildings over tide or shore lands may rest on piles, and shall have a reinforced concrete sill course upon which the veneer shall rest.

In all cases where there is an addition to the thickness of the existing walls, the foundations shall be so strengthened as to carry jointly both the new and old walls.

Section 334. Every building or structure, or portion thereof, hereafter erected, and having a floor constructed therein, shall have the underside of its lowest floor joists at least eighteen (18) inches above the ground at all points, or, if not so constructed, shall have the floor area thereof covered with concrete not less than three (3) inches thick, and shall have walls of concrete or of brick or stone laid in cement mortar extending around the entire area required to have a concrete floor and extending not less than eighteen (18) inches below the surface of the ground. If such walls shall be of brick, they shall be not less than eight (8) inches thick, and if of concrete, not be less than six (6) inches thick.

No permit shall be issued by the Superintendent of Buildings of the City of Seattle for the reconstruction, alteration or repair of the lowest floor or foundation of any building or structure in which it is proposed to conduct or carry on any business, trade or occupation tending to attract rats, or located within the block in which any such business, trade or occupation is carried on, unless provision shall be made to make the same conform to the provisions of this section.

It is provided, however, that in buildings not used for storage or handling of food products, wood floors three (3) inches or more in thickness may be laid in clean sand fills, without air spaces, and solidly imbedded.

Miscellaneous outbuildings, not containing grain or other things which rats feed upon, may have a removable floor of planks or boards, laid and kept loose directly on the ground.

Section 335. All foundations shall be protected against the action of frost.

Section 336. The several classes of stone masonry construction shall conform to the definitions as follows:

Ordinary rubble shall be defined as masonry composed of unsquared stones laid without attempting any regularity of courses or bond.

Coursed rubble shall be defined as masonry having approximately level joints, with stones roughly shaped so as to fit approximately, and joints in wall or pier leveled off at intervals not exceeding every 3 feet 0 inches in height and well bonded.

First-class masonry shall be defined as masonry built of stones in regular courses, the bearing surfaces and ends of which are roughly tooled off, and the stones laid with alternate headers and stretchers so as to secure perfect bond.

Section 337. The allowable compressive stress in pounds per square inch for the several classes of stone masonry shall not exceed the following:

For Stone Masonry.	Lbs.
Coursed rubble with Portland cement mortar	200
Coursed rubble with lime mortar	120
Ordinary rubble with Portland cement mortar	100
Ordinary rubble with lime mortar	60
First class granite masonry with Portland cement mortar	800
First class limestone masonry with Portland cement mortar	400
Dimension sandstone in foundations	140
Dimension sandstone with beds dressed to uniform surface, having 1 inch joint laid in cement mortar	200
Dimension granite in foundations	200
Dimension granite, with beds dressed to uniform surface, having 1 inch joint laid in cement mortar	400
Tenino sandstone, dressed uniform beds, laid in cement mortar, with 1/4-inch joints..	235
Chuckanut sandstone dressed, uniform beds, laid in cement mortar, with 1/4-inch joints..	350

No granite or marble column shall carry a wall exceeding one story in height.

Section 338. All brick shall be of a quality that will stand all ordinary or usual handling, hauling, dumping and delivery on the scaffold or work, without suffering more than 5 per cent. breakage.

Soft bricks shall not be used in any part of a building where exposed to the weather, nor in external or internal piers or bearing walls.

Good hard burned brick, stone or concrete shall be used for all exterior walls and all interior and exterior piers below the surface of the ground,

and hard burned brick, stone, concrete or terra cotta for all exterior walls exposed to the weather except as hereinafter provided.

Section 339. Lime shall be fresh burned quicklime which will thoroughly slake in forty-eight (48) hours.

Lime mortar shall be composed of one part lime putty or hydrated lime and three parts sand.

Lime and cement mortar shall be composed of one part Portland cement and two parts lime putty or hydrated lime, with as much sand as is needed to form good mortar, but not over five parts sand.

Portland cement mortar shall be composed of one part Portland cement and approximately three parts sand by volume, with an allowable one-tenth (1/10) part lime putty or hydrated lime, added to temper the mortar. No cement mortar shall be used or remixed after it has begun to set.

Section 340. The allowable compressive stress in pounds per square inch for brick masonry shall not exceed the following:

	Lbs.
No. 1 paving brick with Portland cement mortar	350
No. 2 pressed brick and sewer brick with Portland cement mortar	250
No. 3 hard common select brick with Portland cement mortar	200
No. 4 hard common select brick with lime and cement mortar	175
No. 5 common brick, all grades with Portland cement mortar	175
No. 6 common brick, all grades, with lime and cement mortar	125
No. 7 common brick, all grades, with good lime mortar	100

Section 341. Brick under Nos. 1 and 2 of the preceding section should not crush at less than 5,000 pounds pressure per square inch of gross area.

Brick under Nos. 3 and 4 should not crush at less than 2,300 pounds pressure per square inch of gross area.

Brick under Nos. 5, 6 and 7 should not crush at less than 1,800 pounds pressure per square inch of gross area. Sand lime brick of this crushing strength may be used where common brick is permitted.

Section 342. Isolated piers of brick masonry shall not be higher than six (6) times their smallest dimensions, unless the above unit stresses are reduced according to the following formula:

$$P = C (1.25 - H/20D)$$

In which formula:

P is the reduced allowed unit stress.

C is the unit stress in the above table.

H is the height of the pier in feet.

D is the least dimension of the pier in feet.

No pier shall exceed in height twelve (12) times the least dimension. Weight of pier shall be added to other loads in computing load coming on the pier.

No structural brick pier shall be less than twelve (12) inches in least dimension.

Section 343. The bond of all brick work shall be formed by laying one course of headers for every six courses of stretchers; provided, that in the case of pressed brick facing, two headers and a stretcher may be laid alternately in every sixth course or an equivalent number of full headers may be used in any other equivalent arrangement, and provided further, that pressed brick facing, when not counted as part of the bearing wall, shall be solid bonded or metal anchored at least two feet no inches (2 ft. 0 in.) horizontally, and every fifth course vertically.

Section 344. All brick laid up in cement, or lime and cement mortar, shall be thoroughly drenched immediately before being laid. Both horizontal and vertical joints shall be completely filled with mortar in all kinds of brick masonry.

No brick shall be laid in freezing weather.

Section 345. During the construction of a building, no bearing or curtain wall shall be carried to a greater height than one scaffold above any other connected wall of the same building.

Section 346. Ashlar facing of a masonry wall shall not be considered as part of a wall for the purpose of carrying weight, unless it has a minimum bond as follows: Every second course must be a bond course, this bond course to extend into the backing a distance equal to the least thickness of ashlar. In addition to such bond, each stone in all courses shall be tied to backing by two substantial galvanized iron anchors. No ashlar shall be less than four (4) inches thick.

Section 347. Wall or pier facing other than stone ashlar shall not be regarded as part of the wall or pier for the purpose of carrying weight unless said facing is four (4) inches or more in thickness and solidly bonded with the backing of at least one continuous course in every twenty (20) inches of the height.

Section 349. Exterior brick walls faced with stone shall have the backing of hard brick work laid in cement mortar; but in no case shall the thickness of the stone and backing together be less than the thickness required for a brick wall of the same height.

Section 350. The backing of any

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iron front that is not wholly self-sustaining shall be treated as an independent wall. If the iron is self-sustaining then the party and division walls shall extend to meet the outer plate of the iron and all vacancies shall be filled with grout to insure complete separation of adjoining rooms.

Section 351. The thickness of a brick wall for the purpose of this ordinance shall be determined with due regard to the following considerations:

The horizontal length between intersecting walls or other adequate permanent vertical lines of lateral bracing.

The character and distance apart of the floor or other horizontal lines of lateral bracing.

The weakening effect of chases and openings.

The liability to eccentric loading, shock or vibration.

The weight of the wall and other loads or forces to be sustained by it, including wind and earth pressure.

The strength of the masonry employed and its allowable unit stress.

Section 352. Brick partitions resting on masonry foundations or other incombustible support may be permitted in private dwellings to be built of any thickness not less than four (4) inches, that meets the requirements of strength and stability.

Section 353. Brick filler walls shall be not less than eight (8) inches thick. Attic and pent house walls, division walls, elevator, stairway and temporary enclosure walls may be not less than eight (8) inches thick. No wall fronting upon any street or alley shall be less than eight (8) inches thick in any building.

Section 354. Non-bearing brick walls not over thirty (30) feet long, if securely anchored or bonded at both ends to intersecting walls or other sufficient vertical lines of fireproof lateral bracing, shall be not less than eight (8) inches thick in the upper two stories and thicker below as may be necessary to meet the requirements of strength and stability.

Bearing walls shall not be less than twelve (12) inches thick except that in buildings not over one story or twelve (12) feet high, exclusive of parapet walls, and having cross end walls not over twenty (20) feet apart, eight inch (8 in.) bearing walls will be permitted. In all one-

story buildings having walls not over sixteen (16) feet high, exclusive of parapet walls, and pilastered as hereinafter provided for, allowable twelve inch (12 in.) walls, the eight-inch (8 in.) wall between pilasters may be considered a bearing wall for roof loads and parapet walls only.

Section 355. Non-bearing brick walls in fireproof buildings shall be not less than the thickness given in Table.

TABLE 1.

8th	8							
7th	8	8						
6th	12	8	8					
5th	12	12	8	8				
4th	12	12	12	8	8			
3rd	16	12	12	12	8	8		
2nd	16	16	12	12	12	8	8	
1st	20	16	16	12	12	12	8	8
Basement	20	16	16	16	16	12	12	8
Stories	8	7	6	5	4	3	2	1

Section 356. Bearing walls of brick in fireproof buildings shall not be less than the thickness given in Table 2.

TABLE 2.

8th	12							
7th	12	12						
6th	12	12	12					
5th	16	12	12	12				
4th	16	16	12	12	12			
3rd	16	16	16	12	12	12		
2nd	16	16	16	16	12	12	12	
1st	20	20	16	16	16	12	12	12
Basement	20	20	20	20	16	16	12	12
Stories	8	7	6	5	4	3	2	1

Section 357. Non-bearing brick walls over thirty (30) feet long, in non-fireproof buildings, if securely anchored or bonded at both ends to intersecting walls or other sufficient vertical lines of fireproof lateral bracing, and to floors every six (6) feet, shall be in the several stories not less than the thickness given in Table 3; provided, however, that no non-bearing brick wall in a building designed for more than one hundred fifty (150) pounds per square foot of floor shall be less than twelve (12) inches thick, except in the top story.

TABLE 3.

6th	8							
5th	12	8						
4th	12	12	8					
3rd	12	12	12	8				
2nd	16	12	12	8	8			
1st	16	16	12	12	8	8		
Basement	20	16	16	12	12	8		
Stories	6	5	4	3	2	1		

Section 358. Bearing walls of brick over thirty (30) feet long in non-fireproof buildings shall be not less

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than the thickness given in Table 4, except as provided in Section 354.

TABLE 4.

6th	12					
5th	12	12				
4th	16	12	12			
3rd	16	12	12	12		
2nd	16	16	12	12	12	
1st	20	16	16	12	12	12
Basement	20	20	16	16	12	12
Stories	6	5	4	3	2	1

Section 353. Brick walls, either bearing or non-bearing, for private dwellings not over three stories high, shall not be less than the thickness in Table 5.

TABLE 5.

3rd			8	
2nd			8	8
1st			12	8
Basement			12	12
Stories			3	2

Section 360. Eight inch (8 in.) and twelve inch (12 in.) hollow walls of brick may be used in residences and in one story buildings when constructed as follows:

Eight inch (8 in.) walls may be built either with stretchers on edge with open spaces in the center and headers every third course, or with stretchers flat on the face and backing of stretchers on edge, with headers every third course.

Twelve inch (12 in.) walls may be built either with three courses of stretchers on edge and two open spaces, or with a facing course of stretchers, having headers every sixth course and a backing of stretchers on edge in two courses, which makes two open spaces.

In other respects, hollow walls must conform to the requirements of solid walls under like conditions.

Section 361. Tables 1, 2, 3, 4 and of thickness shall apply both on the tions, give the minimum required thickness of brick walls in inches.

Section 362. Walls that are weakened by chases or by openings or other structural defects shall be increased in thickness or otherwise made sufficiently strong and stable.

When the openings in the wall exceed thirty-three per cent. (33%) of the area of the wall, then the thickness of the wall shall be increased four (4) inches over the requirements of Sections 354, 355, 356, 357, 358 and 359. The required increase of thickness shall apply both on the basis of the entire wall area and on the basis of its subdivisions or panels.

Section 363. Walls in which the openings are of such extent as to leave relatively narrow sections or piers shall be computed as piers in accordance with Section 342.

Section 364. Recesses and openings

may be made in walls, provided that thickness of the backs of such recesses be not less than four (4) inches. No continuous vertical recess of more than six (6) inches in depth shall be made in any twelve inch (12 in.) wall; and all such openings and recesses shall be filled with cement at each floor. Provided, however, that hollow walls of brick are permitted in accordance with Section 360.

Section 365. Walls that are liable to shock or vibration, lateral pressure or other deleterious or unusual conditions shall be made thick enough and so constructed as to meet the requirements of strength and stability under the special conditions imposed, subject to the approval of the Superintendent of Buildings.

Section 366. Brick walls less than twelve inches (12 in.) thick if exposed to the weather must be laid up in cement or lime and cement mortar. Cornices, coping walls and walls subject to eccentric stresses must be laid up in cement mortar.

Section 367. Brick walls more than 50 feet high in non-fireproof buildings shall be laid up in cement or lime and cement mortar.

Section 368. When the required wall thickness is augmented by masonry buttresses, as hereinafter defined, forming projections on either or both sides of a wall, then the said required thickness between buttresses may be reduced by one-half of the thickness added at the buttress, provided that no part of such wall shall be less than eight (8) inches thick.

The term buttress shall be understood to include all piers and pilasters. Buttresses shall be at least one tenth (1/10) as wide as the spacing between them, and their clear distance apart shall not exceed twenty-four (24) times the reduced thickness of the wall between them, except that where buttresses are continuously tied together horizontally by fireproof construction at heights of not over twenty (20) times the reduced wall thickness, and the wall is anchored every four (4) feet to the roof or floor construction, the clear distance between buttresses may be increased to thirty (30) times the reduced thickness of the wall between them.

Where buttresses are used, they shall be so placed that the principal trusses or girders rest on them.

Section 369. If the loads carried by trusses, beams and girders are supported by iron, steel or reinforced concrete columns built into the walls, the walls between such columns shall be built as required between buttresses, and shall be substantially anchored to the columns

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by metal anchors in every five feet of the height.

Section 370. The story height of buildings shall be the distance between finished floor levels or between top floor and roof levels or structural ceiling, if there be any, and shall not exceed twenty (20) times the thickness of any enclosing bearing walls.

Section 371. All foundations shall be protected against the effect of frost, and cement mortar, which has been affected by frost, shall not be used in building construction.

Section 372. The ratio of thickness of other masonry walls to brick walls shall be as follows:

Uncoursed rubble	1.4
Coursed rubble	1.2
Stone ashlar backed by stone or concrete	1.0
Unreinforced concrete 1-3-5....	1.0

Provided, that basement story walls of 1-3-5 concrete are not required to be thicker than the first-story walls supported by them.

Section 373. Double walls with continuous hollow spaces shall be tied together with metal anchors placed not more than three (3) feet apart horizontally, and twenty (20) inches apart vertically. If used for bearing walls, the walls shall be reckoned independently.

Section 374. All exterior and division masonry walls, including those facing upon courts and light shafts, shall be extended above the roof as fire wall parapets at least three (3) feet, except as hereinafter provided.

Buildings with roofs constructed as required for fire-proof buildings need not be provided with fire wall

parapets. On street and alley lines, the fire wall parapets of buildings other than fireproof need not extend more than eighteen (18) inches above the roof, or may be omitted when the top of the roof boards and roof joists are protected from fire for a distance of at least five (5) feet from such street or alley lines by a coating of fireproof materials at least two (2) inches thick.

Fire wall parapets may be reduced to twelve (12) inches height above the roof along the property side lines only: Provided, that they are built against an adjacent building or buildings, the walls of which are of masonry and which extend at least three feet, no inches (3 ft., 0 in.) above the said roof, and which have no openings, the lower edge of which is within three feet, no inches (3 ft. 0 in.) of said roof.

Parapet walls may be reduced to twelve (12) inches in height on one-story buildings in the third and fourth building districts.

Fire wall parapets shall not be less than eight (8) inches thick if built of brick or of proportionate thickness if built of other masonry.

All fire wall parapets shall be capped with weatherproof coping of metal, dense tile set in cement mortar, or reinforced concrete at least two (2) inches in thickness with a troweled top.

Section 375. All posts, columns, girders, floor joists and structural parts which would transmit, if resting directly on masonry, a greater load thereto per square inch than is allowed by law, shall be carried on stone, concrete, cast or wrought

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iron or steel bearing plates of sufficient size and thickness to distribute the load, without exceeding the stresses prescribed by law.

All posts and columns which rest on masonry must be brought to a true bearing at right angles with their axes and set plumb without wedging.

Section 376. No masonry wall shall rest upon or be supported by any wooden support, unless a masonry arch is turned above such support of sufficient strength to carry the wall; provided, that in one-story masonry buildings cornices and firewalls may be carried on wooden lintels covered on both faces and underside with galvanized iron, or furring and metal lath with cement plaster.

Section 377. Exterior walls shall be securely anchored to all structural floors and roofs by approved metal anchors, at not to exceed six (6) feet centers. Floors and roof shall be so designed and constructed as to form continuous and sufficient anchorage across from wall to wall. Wood framing to which walls are anchored must be either continuous from wall to wall or must be effectively tied together by suitable metal ties.

The ends of timbers or joists bearing on masonry must be self-releasing in the event that the interior supports are removed by fire or otherwise, and must have ample clearance or other means to prevent dry rot.

When it is deemed necessary or desirable to corbel brick walls to afford bearing for joists or other framing, such corbels shall not exceed one-fourth ($\frac{1}{4}$) the wall thickness in total projection on either side of wall, nor one-half ($\frac{1}{2}$) inch projection for each corbel course.

In the case of party or division walls designed to support joists or other framing from both sides, the ends of such joists or other framing shall not approach nearer than two (2) inches from the center of such walls. In all cases the ends of joists or other framing resting on brickwork shall be protected by at least four (4) inches of brick or other masonry.

Metal wall anchors shall be equal to the following: The anchor bar shall be of one and one-half ($1\frac{1}{2}$) inch by three-eighths ($\frac{3}{8}$) inch iron, with a three-fourths ($\frac{3}{4}$) inch by eight (8) inch pin at the wall end. The other end shall be turned down

and dapped into the timber at least one-half ($\frac{1}{2}$) inch and fastened in place with three (3) spikes, one of which must be within one (1) inch of the turned down end of the anchor.

Section 378. Hard burned hollow building tile walls may be used in lieu of brick and of the same thickness as brick, subject to the following limitations:

Such tile shall not be used in the construction of bearing walls in buildings where the live load is in excess of one hundred fifty (150) pounds per square foot, nor below the top thirty-three (33) feet or three (3) stories of any building other than a residence or apartment house, nor below the top forty-four feet or four (4) stories of any residence or apartment house. In bearing walls of greater height than above, or where the live load is in excess of one hundred fifty (150) pounds per square foot, hard burned hollow building tile walls may be used if constructed four (4) inches thicker than elsewhere herein provided for brick walls.

Section 379. Terra cotta tile shall be made of clay, properly cured and hard burned to a good density without undue warping or checking.

The absorption of tile shall not be greater than twelve per cent. (12%) by weight at the end of forty-eight (48) hours continuous immersion in water.

Vertical webs must not be spaced more than four (4) inches apart center to center and must have a thickness of not less than twenty per cent. (20%) of their height. All building tile shall have their webs and shells so arranged that the whole volume of cellular space within the outer lines of the tile does not exceed fifty-five per cent. (55%) of the gross volume of the tile.

Section 380. Cement mortar as specified for brick work shall be used in all exterior and bearing walls, as for brick wall work.

Lime and cement mortar or better as for brick work shall be used for interior partitions. All tile in a wall shall be solid bedded in mortar and laid with a full masonry bond.

Section 381. Tile walls must not be loaded to exceed a unit stress of ninety (90) pounds per square inch of net vertical webs and shell section combined, nor to exceed a unit stress of forty (40) pounds per square inch of the gross horizontal wall section.

Joists and beams shall not be seat-

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ed directly or on hollow tile, but shall be supported on filled tile or on at least two courses of hard burned brick or equivalent concrete plate, or on a metal plate of sufficient thickness and size to distribute the load to the webs and shells in such a way as not to exceed the allowable unit stress.

Section 382. Wall thicknesses, off-sets, pilasters, bonding of face brick and floor and beam anchorage requirements shall be the same as for brick walls.

Corbeling of tile walls shall not be permitted except when continuous brick or concrete corbels are built into the wall the same as for brick walls: Provided, however, that for one-story private garages and one-story residences, walls of hollow clay building tile six (6) inches thick may be used as bearing walls.

In residences and all one story construction, lintels may be constructed of tile filled with concrete and reinforced with steel bars. Such lintels shall be computed as a reinforced beam for the enclosed concrete.

Hollow tile may be used for foundation walls of buildings not over two stories high when the excavation is not over six (6) feet deep. The foundation wall thickness shall not be less than four (4) inches thicker than the allowable thickness of the tile wall above.

Interior partitions of tile shall be considered as fireproof construction and shall be not less than:

- 3 inch thickness for a height of 12 feet;
- 4 inch thickness for a height of 16 feet;
- 6 inch thickness for a height of 20 feet;
- 8 inch thickness for a height of 26 feet.

Fireproof stair and elevator enclosures of tile shall be eight (8) inches thick if not plastered, and six (6) inches thick if plastered on both sides.

Section 383. Hollow concrete blocks may be used for walls under the same conditions as for terra cotta tile.

Hollow concrete blocks shall have a minimum web and shell thickness of two (2) inches and shall be of such proportions of cement and aggregate as to have an ultimate crushing strength of fifteen hundred (1500) pounds per square inch net area of vertical web and shells and unit stress of three hundred (300) pounds per square inch net vertical web and shell area shall be allowed.

Absorption shall not exceed ten per cent. (10%) by weight in forty eight (48) hours' immersion.

Cement mortar, as specified for brick work, shall be used to lay up cement blocks.

Hollow cement blocks may be used under the same conditions as brick as regards wall thickness, off-sets, pilasters, bonding of face brick and floor and beam anchorage.

All blocks must be cured twenty-eight (28) days before using.

Foundations of concrete blocks may be used under the same conditions as for terra cotta foundation walls.

Section 384. Timber used for building purposes shall be sound, well manufactured, free from cross

or spiral grain, shakes, dead, loose or decayed knots and other defects that will materially impair its strength and durability.

Wood used for studs, joists, posts, beams or trusses may be of rough common stock, provided that if a truss be of such size that it requires iron rods and bolts, the principal members shall be of select common stock.

No large knots shall be allowed within the lower or upper quarter of any floor joist or girder.

Section 385. The maximum allowable stresses in pounds per square inch on actual sections of timber shall be as follows:

	Extreme Fibre Stress and Tension with Grain.....	Compression with Grain.....	Compression Across Grain.....	Direct.....	Shear with Grain—	Horizontal Shear—
					Bending.....	Bending.....
Douglas Fir...	1600	1600	400	200	150	150
Spruce	1000	800	300	130	100	100
Western Hemlock ...	1400	1400	350	180	130	130

Allowable unit stresses are based on actual size of structural timber as used.

Diagonal bearing across the grain shall be computed in accordance with the following formula:

$$N = P \sin^2 A + Q \cos^2 A$$

In which:

N=the allowable stress per square inch on a surface inclined at angle "A" to the grain.

P=the allowable stress per square inch in end bearing.

Q=the allowable stress per square inch in cross bearing.

Section 386. The unit stress on timber posts shall comply with the formula:

$$S = C(1 - L/70D) \text{ and } S \leq .75 C$$

In which formula:

S=allowable stress in pounds per square inch of cross section.

C=compressive strength of timber with the grain given in table.

L=length in inches.

D=least diameter in inches.

The maximum unsupported length of a timber post shall not exceed twenty-four (24) diameters.

Section 387. All buildings having wood posts and girders shall be so constructed as to form proper bearings for girders and the post next above, without exceeding any of the allowable stresses of this code.

All girders built up of more than one piece shall be bolted together by five-eighth (5/8) inch bolts or larger, such bolts to have a spacing of not more than four (4) times the depth of the girders, and no space shall be left between the members unless such space is filled solid the full width of the opening, and not less than two (2) inches thick from the under side, to prevent fire burning between the members.

Section 388. All floor joists supporting header or trimmer beams shall be increased in size sufficiently

to carry the extra load transmitted to them.

All header or trimmer beams more than four (4) feet in length in buildings designed to carry a live load of more than fifty (50) pounds to the square foot, when not resting on a wall or post, shall be hung in steel or iron hangers, capable of carrying the figured load with a factor of safety of four (4), as determined by test to destruction.

All tail beams more than eight (8) feet in length or required to carry a load of sixteen hundred (1600) pounds, or more, shall be hung as required for headers or trimmers.

Section 389. All single span laminated floors shall be free from joints.

Laminated floors which are built continuous over one or more supports may be used when computed with a bending moment of $WL/8$ where W is the total load and L the length of the span, subject to the following requirements:

At least fifty per cent. (50%) of the timbers must pass over the supports to one or the other of the quarter points of the adjacent spans. No splices are permitted in the middle third of the span, and not more than two (2) splices at the same point in any one foot width of floor.

Every stick of such floor shall be

nailed at least every eighteen (18) inches and twice at each end, with nails of such a length that they will pass completely through two sticks and half way into the third.

Section 390. Trusses made of timbers not over two (2) inches in least dimensions may be used, provided all members, joints and bracing thereof are in accordance with the principles of statics. In such trusses, nails in sheer may be considered to resist a force equal to seven times the trade pennyweight, and at least one safety bolt not less than one-half ($\frac{1}{2}$) inch round shall be added at each joint, but such safety bolts shall not be relied upon to carry any stress, and no nails shall be used in tension.

Trusses made up of combinations of iron or steel and wooden members may be used, provided all members, joints, details and bracing thereof are in accordance with the principles of statics. No truss joint shall place dependence on the combined action of two systems of stress transfer, where one system may be made useless by timber shrinkage.

All plans for truss construction when submitted to the Superintendent of Buildings for approval shall be accompanied by strain sheets.

PART 4 STRUCTURAL REQUIREMENTS

Section 401. All cement used under the provisions of Part IV of this ordinance shall be Portland cement.

Cement shall conform to the specifications for physical and chemical properties of Portland cement as published by the American Society for Testing Materials, serial designation C9-21, which said specifications were filed in the office of the City Comptroller and ex-officio City Clerk on the 19th day of December, 1921, and are now on file therein as File No. 83315 and by such reference are hereby made a part hereof, to the same extent as if herein fully set forth.

When necessary to determine the physical or chemical properties of cement, the same shall be tested and all tests shall be in accordance with the herein mentioned specifications.

All cement tests herein prescribed shall be made by a competent expert employed by the person having charge of the work, and said expert shall file with the Superintendent of Buildings a certificate of the results of tests made by him.

All cement shall be delivered on the work in the original unbroken packages, stamped with the brand and maker's name and the place of manufacture, and no cement shall be used from a package which shows

evidence of having set. All cement after having been tested and approved shall be stored in a weatherproof shelter and shall not come in contact with the ground or any moist surface.

Section 402. Fine aggregate shall consist of sand or stone screenings or combination of the same having hard, durable grains. It shall be free from injurious quantities of dust or soft particles, clay or organic material.

Fine aggregate used in combination with coarse aggregate which is not larger than will pass a one and one-half ($1\frac{1}{2}$) inch screen, shall be graded as follows:

One hundred per cent. (100%) shall pass a No. 4 screen; not less than forty per cent. (40%) nor more than sixty per cent. (60%) shall pass a No. 30 screen.

Fine aggregate used in combination with coarse aggregate having a maximum size of two and one-half ($2\frac{1}{2}$) inches shall be graded as follows:

One hundred per cent. (100%) shall pass a one-fourth ($\frac{1}{4}$) inch screen; not less than twenty per cent. (20%) nor more than thirty-five per cent. (35%) shall pass a No. 30 screen.

Section 403. Coarse aggregate shall

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consist of gravel or crushed stone which is retained on a screen having $\frac{1}{4}$ inch diameter holes. It shall be graded in size from small to large particles. It shall be clean, hard, durable and free from injurious quantities of deleterious matter. It shall be small enough to produce in combination with the mortar a homogeneous concrete of sluggish consistency which shall pass readily between the reinforcement and completely fill all parts of the form.

Cinder concrete shall not be used for reinforced concrete structures.

Section 404. Water used in mixing concrete shall be free from oil, acid, alkali, or organic matter.

Section 405. Reinforcing steel shall conform to the requirements of the specifications for concrete reinforcing bars as published by the American Society for Testing Materials, serial designation A15-14, which said specifications were filed in the office of the City Comptroller and ex-officio City Clerk on the 19th day of December, 1921, and are now on file therein as File No. 83316, and by such reference are hereby made a part hereof to the same extent as if herein fully set forth.

When required by the Superintendent of Buildings, steel shall be tested and all tests shall be in accordance with the herein mentioned specifications.

All reinforcing steel shall be free from flaking rust, loose scale, or a coating of any kind which will reduce bond. Steel materially reduced in section by corrosion shall not be used.

Section 406. Forms shall be substantial and unyielding, tight enough to prevent leakage of mortar, clean, and cleared of all debris, and thoroughly wet before receiving concrete. Forms shall be so constructed as to permit easy inspection, and shall not be filled with concrete prior to inspection and approval by the Superintendent of Buildings, unless expressly authorized by him. The Superintendent of Buildings shall be notified at least thirty-six (36) hours in advance of the time when an inspection is needed.

Section 407. The fabrication, shape, size and disposition of reinforcement shall conform to the approved plans. Effective means shall be employed to secure the steel against displacement.

Section 408. Construction joints

not indicated on plans shall be so located and formed as to least impair the strength of the structure.

Horizontal joints shall be formed by embedding stones projecting above the surface, or by mortises or keys formed in the concrete, or by roughening the concrete surface, in all cases providing ample vertical steel to hold the jointed portions in intimate contact.

The joint in the columns shall be made at the underside of the deepest girder or in flat slabs at the bottom of the flare. For the section above, it shall be at the floor line; provided, however, that in the case of beams projecting above the main part of a floor, a second joint may be made at the top of the beam. The joint in girders shall be at a point midway between the supports; provided, however, that in case a beam intersects the girder at the mid point, the joint may be offset. The joint in beams, slabs and joints shall be at the points of minimum shear, usually the middle of the span.

Joints shall be perpendicular to the axis of the stress, provided, however, that shear at right angles to the axis shall be provided for by adequate inclination of the joint.

Before placing concrete on the top of a freshly poured column or wall, a period of not less than two (2) hours shall be allowed for settlement.

Section 409. The measurement of fine and coarse aggregate shall be by loose volume. One sack of cement weighing ninety-four (94) pounds shall be considered equal to one cubic foot. Methods of measurement shall be such as will secure at all times separate and uniform measurements of water, cement, fine aggregate and coarse aggregate.

The ingredients shall be thoroughly mixed to the desired consistency and the mixing shall continue until the mass is homogeneous in appearance and color, and the cement uniformly distributed.

Section 410. Machine mixing shall be done in a batch mixer; the mixing point shall have positive means of measuring accurately each batch of water, cement and aggregates.

Each batch shall be rotated at least one and one-half ($1\frac{1}{2}$) minutes after all the ingredients are in the mixer. Machine mixers shall have a peripheral speed of approximately two hundred (200) feet per minute.

Section 411. Hand mixing shall be

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done on a watertight platform. Concrete mixed by hand shall be turned over not less than six (6) times, and until the mass is uniform in appearance and color.

Section 412. Materials shall be mixed wet enough to produce a concrete of such consistency that it will flow sluggishly into the forms, and about the reinforcement; it shall not be so wet as to produce a separation of the ingredients during wheeling or handling.

Section 413. The remixing of mortars or concrete which have partly set is prohibited.

Section 414. Concrete shall be deposited in layers in such a manner as to permit thorough compacting, and all concrete shall be thoroughly compacted by the use of adequate vibrators, tampers, slice bars or rods, by spading, or by hammering the forms as each particular case may require.

When work is resumed at a construction joint, concrete previously placed shall be cleaned, roughened and coated with rich cement grout at the abutting surface.

Concrete conveyed by spouts shall be placed in such a manner as to form a practically continuous stream in the spout.

Section 415. In placing concrete under water, the means adopted shall effectually prevent the cement from washing away and the formation of laitance.

The surfaces of concrete exposed to premature drying shall be kept wet continuously for a period of at least seven days.

Section 417. Concrete shall not be mixed and placed at freezing temperature unless special precautions are taken to prevent the use of materials containing frost.

Section 418. Forms shall not be disturbed until the concrete has adequately hardened, nor shall the permanent shores be removed until the structure has attained its designed strength and excess construction loads have been removed. Wall and column forms shall be left in place until the concrete has hardened sufficiently to sustain its own weight and the construction loads likely to come upon it. Forms other than wall or column forms shall be left in place until the concrete has hardened sufficiently to carry the full load which it must sustain, unless removed in

sections and each section of the structure is immediately reshored.

Section 419. Exposed reinforcing bars intended for bonding with future extensions shall be protected from corrosion.

Section 420. Reinforcing steel shall be completely imbedded in concrete and shall be nowhere nearer the surface than as follows:

Foundations, 4 inches.

Retaining walls, earth face, 2 inches.

Columns, girders, beams, 1½ inches.

Joists and bearing walls, 1 inch.

Slabs, ½ inch.

Section 421. The drawings for the reinforced concrete portion of any structure shall be complete working drawings; when presented to the Superintendent of Buildings for approval they shall be accompanied by the required specifications, computations and stress sheets.

The specifications shall state the mix, water cement ratio, and grading of aggregate to be used, and the strength which the concrete shall attain after a definite period.

All openings, loadings and special considerations affecting the strength of the structural design shall be shown on the drawings.

DEFINITIONS

Section 422. The following words and expressions wherever occurring in this ordinance are used in the sense specified in this section, to-wit:

Approved: Meeting the approval of the Superintendent of Buildings.

Column Capital: An enlargement of the upper end of a reinforced concrete column built monolithic with the column and flat slab to increase the moment of inertia of the column and the shearing resistance of the slab at sections where high bending moment or high shear may occur.

Column Strip: A portion of a panel of a flat slab which has a uniform width equal by one-fourth of the panel length on a line perpendicular to the direction of the strip, and whose outer edge lies on the edge of the panel.

Dropped Panel: The structural portion of a flat slab which is thickened throughout an area surrounding the column capital.

Effective Area of Concrete: The area of a section of the concrete which lies between the tension rein-

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forcement and the compression surface of the beam or slab.

Effective Area of Reinforcement: The area obtained by multiplying the right cross sectional area of the metal reinforcement by the cosine of the angle between the direction of the reinforcement bars, and the direction for which the effectiveness of the reinforcement is to be determined.

Engineer: The engineer in responsible charge of design and construction.

Flat Slab: A flat concrete floor or roof plate having reinforcement bars extending in two or more directions and having no beams or girders to carry the load to the supporting columns.

Laitance: The extremely fine particles which separate from freshly deposited mortar or concrete and collect on the top surface.

Middle Strip: The portion of a panel of a flat slab which extends in a direction parallel to a side of the panel, whose width is one-half the panel length on a line at right angles to the direction of the strip and whose center line lies on the center line of the panel.

Negative Reinforcement: Reinforcement so placed as to take negative bending moment.

Panel: An area of a slab bounded by the center lines of four rectangularly disposed columns.

Panel Length: The distance between centers of two columns of a panel in either rectangular direction.

Positive Reinforcement: Reinforcement so placed as to take stress due to positive bending moment.

Principal Design Section: The vertical sections in a flat slab on which the moments in the rectangular directions are critical.

Slump: The shortening of a mass of wet concrete when released from a truncated cone-shaped vessel, twelve inches (12 in.) high, eight inches (8 in.) diameter at the large end, and four inches (4 in.) diameter at the small end. Used as a measure of workability.

Water-Cement Ratio: The ratio of volume of water to volume of cement in a given mix of concrete (one cubic foot of cement weighs ninety-four (94) pounds.)

Section 423. The dead weight of all grades of concrete shall be taken as one hundred forty-four (144) pounds per cubic foot.

Section 424. The design of reinforced concrete members shall be based on the following assumptions:

(a) Calculations shall be made with reference to working stresses and safe loads.

(b) A plane section before bonding remains plane after bonding.

(c) The modulus of elasticity of concrete in compression is constant within the limits of working stress. The distribution of compressive stress in beams is therefore rectilinear.

(d) The values of the modulus of elasticity of concrete in computations for the position of the neutral axis for the resisting moment of beams and for compression of concrete in columns are as follows:

(1) One fortieth (1/40) that of steel when the compressive strength of the concrete at twenty-eight (28) days is less than eight

hundred (800) pounds per square inch.

(2) One-fifteenth (1/15) that of steel when the compressive strength of the concrete at twenty-eight (28) days lies between eight hundred (800) pounds and twenty-two hundred (2200) pounds per square inch.

(3) One-twelfth (1/12) that of steel when the compressive strength of the concrete at twenty-eight (28) days lies between twenty-two hundred (2200) pounds and twenty-nine hundred (2900) pounds per square inch.

(4) One-tenth (1/10) that of steel when the compressive strength of the concrete at twenty-eight (28) days is higher than twenty-nine hundred (2900) pounds per square inch.

(5) One-eighth (1/8) that of steel for calculating the deflection of reinforced concrete beams which are free to move longitudinally at the supports, and in which the tensile resistance of the concrete is neglected.

(e) In calculating the moment of resistance of reinforced concrete beams and slabs, the tensile resistance of the concrete is neglected.

(f) The adhesion between the concrete and the metal reinforcement remains unbroken throughout the range of working stresses. Under compression, the two materials are therefore stressed in proportion to their modulus of elasticity.

(g) Initial stress in the reinforcement due to expansion or contraction of the concrete is neglected except in the design of reinforced concrete columns.

Section 426. When necessary to verify the strength of concrete being used, test cylinders shall be made upon notice from the Superintendent of Buildings. These cylinders shall be either six (6) inches diameter by twelve (12) inches high, or eight (8) inches diameter by sixteen (16) inches high, and shall be tested at the age of twenty-eight (28) days.

Section 427. The ultimate compressive strength of concrete at the age of twenty-eight (28) days shall, when poured under expert supervision, as hereinafter provided, be assumed as follows (Proportions are by volume):

Cement	Sand	Gravel	Ultimate Strength Pounds per Square Inch
1	1	2	2900
1	1½	3	2400
1	2	4	2000
1	2½	5	1750
1	3	5	1600
1	3	6	1400

If, however, test cylinders from any structure are found to have less strength than assumed above, the builder shall make such changes in materials, proportions or mixing as may be necessary to secure the required strength.

The ultimate strength of concrete not under expert supervision shall be assumed as seventy-five per cent. (75%) of that given in the above table.

Section 428. The symbols hereinafter used are defined as follows:

A—Total net area of column, foot—

ing or pedestal, exclusive of fire-proofing.

A_c —Net effective area of concrete.

A'_c —Net concrete area of longitudinally reinforced column with lateral ties, equals gross area of column section minus an area one inch wide all around the section minus the area of the longitudinal reinforcing bars.

A_s —Effective cross sectional area of steel.

b —Width of beam.

b' —Width of stem of T-Beam.

b_1 —Width or diameter of dropped panel in flat slabs.

c —Diameter of effective column capital in flat slabs.

d —Effective depth of a member in flexure.

f_c —Safe working stress of concrete.

f'_c —Ultimate compressive strength of concrete in pounds per square inch.

f_s —Safe working stress of steel.

h —The unsupported length of a column.

I —Moment of inertia.

j —Ratio of the lever arm of a resisting couple to the effective depth d in a member in bending.

k —Ratio of depth of the neutral axis to the effective depth d in a member in bending.

l or L —Distance center to center of supports. (Also see Section 449, Flat Slabs).

M —Bending moment or moment of resistance, in general.

M_o —The sum of the positive and negative bending moments in either rectangular direction at the principal design sections of a flat slab.

n —Assumed ratio of the values of the moduli of elasticity of concrete to steel.

p —The ratio of the effective area of reinforcement to the effective area of concrete.

P —Axial column load on a column whose length is less than fifteen (15) times its least dimension.

P' —Safe axial load on a column whose length is more than fifteen (15) times its least dimension.

r —Ratio of cross-sectional area of negative reinforcement which crosses entirely over the column capital of a flat slab, or over the dropped panel, to the total cross-sectional area of negative reinforcement in the two (2) column strips.

R —Ratio of positive or negative moment in two (2) column strips or one (1) middle strip of a flat slab, to M_o .

R —Radius of gyration in general.

RM_o —A specific part of the summation moment M_o in flat slabs.

t —Slab thickness.

t_1 —Dropped panel thickness in flat slabs.

t_2 —Slab thickness in flat slabs.

v —Unit Shearing stress.

w —Uniformly distributed load per unit of length of beam or slab.

W —Total live and dead load uniformly distributed on a panel of a flat slab.

Section 429. When all the regulations of this ordinance are observed in the design, supervision, inspection and construction of reinforced concrete, the working stresses shall not exceed the following:

REINFORCEMENT—Tension or compression in steel.

Billet Steel Bars.

(1) Structural grade....

.....16000 pounds per sq. in.

(2) Intermediate grade..

.....18000 pounds per sq. in.

(3) Hard grade

.....20000 pounds per sq. in.

Cold drawn steel wire....

.....20000 pounds per sq. in.

Provided that not over sixteen thousand (16,000) pounds per square inch shall be used in the design unless certified steel test reports are furnished of the reinforcement actually used.

CONCRETE—Compression.

(1) Extreme fibre stress positive bending

.....0.375 f'_c

(2) Extreme fibre stress, negative bending

.....0.410 f'_c

Provided the member

frames into a mass of concrete

50% wider and 25%

deeper than the member.

(3) Axial compression—piers

only

.....0.25 f'_c

(4) Bearing, from.....

.....0.25 f'_c

where sections are of the

same dimension proportionately,

to

.....0.500 f'_c

where the area of the second

member is at least

twice that of the first member.

(5) Bond

Beams, slabs, one way

footings

Plain bars

.....0.40 f'_c

Ditto—Deformed bars... ..

.....0.050 f'_c

Footings, two way reinforcement,

above values to be reduced by

25%.

Footings, each additional

direction of reinforcement,

above values to be reduced

by 10%.

The maximum unit values

for bond on the richer

mixes of concrete shall be

eighty (80) pounds per

square inch for plain bars

and one hundred (100)

pounds per square inch for

deformed bars.

For bars adequately anchored

at both ends, bond stresses

50% higher than those herein

specified are allowed.

(6) Shear and diagonal tension.

Beams without web reinforcement.

Longitudinal bars not

anchored

.....0.02 f'_c

Longitudinal bars anchored

.....

.....0.03 f'_c

Beams with web reinforcement.

Tension reinforcement

bent up with regard to

shear

.....0.03 f'_c

Web fully reinforced... ..

.....0.06 f'_c

Web fully reinforced and

all reinforcements adequately

anchored.....

.....0.12 f'_c

Beams having a higher

shearing stress than 0.06

f'_c shall be subject to the

approval of the Superintendent

of Buildings as to design and

calculation.

In calculation for shearing

stress the maximum unit

value which may be used

for any mix of concrete

shall not exceed $f'_c=2000$

pounds per square inch.

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(7) Punching Shear.
 On footings, rectangular type0.10 f'
 (Figured from the top of the footing to the center of gravity of the steel).
 When the depth of the supported or supporting member is less than 1/15th of the span in the case of beams and slabs, or less than 1/3rd of the overhang in the case of cantilevers, the unit punching stress shall not exceed.....0.06 f'

Section 430. The span length for beams and slabs simply supported shall be the distance center to center of supports, which need not exceed the clear span plus the length required for bearing.

The span length for continuous and restrained members built monolithically into the supports shall be the clear span. Maximum negative moments shall be considered as existing at the ends of the span, as herein defined.

When brackets are used, only that portion of the bracket within forty-five (45) degrees of the vertical shall be considered as reducing the span of continuous members, and in such cases the total span shall not be less than the clear span between brackets, plus one-half the total depth of the beam. No portion of a bracket used for the purpose of reducing the span of a beam shall be considered as adding to the effective depth of a beam.

Section 431. The following moments at critical sections of freely

supported beams and slabs of equal spans carrying uniformly distributed load shall be used:

(a) Maximum positive moment in beams and slabs of one span.
 $M = w l^2 / 8$

(b) Center of slabs and beams, continuous for two spans only.

(1) Positive moment at the center.

$$M = w l^2 / 10$$

(2) Maximum negative moment, supports.

$$M = w l^2 / 8$$

(c) Slabs and beams continuous for more than two spans.

(1) Center and supports of interior spans.

$$M = w l^2 / 12$$

(2) Interior support and center of end spans.

$$M = w l^2 / 10$$

(d) Negative moment at the supports of slab or beam built into brick or masonry walls in a manner that develops partial end restraint.

$$M \text{ not less than } w l^2 / 16$$

The following moments at the critical sections of beams or slabs of equal spans cast monolithic with columns or similar supports and carrying a uniformly distributed load shall be used.

(a) Supports of intermediate spans.

$$M = w l^2 / 12$$

(b) Center of intermediate spans.

$$M = w l^2 / 16$$

(c) Beams in which I/l is less than twice the sum of the values of I/h for the exterior columns above and below which are built into the beam.

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- (1) Center and first interior support.

$$M = w l^2 / 12$$

- (2) Exterior supports.

$$M = w l^2 / 12$$

(d) Beams in which l/h is equal to or greater than twice the sum of the values of l/h for the exterior columns above and below which are built into the beam.

- (1) Center and first interior support of end span.

$$M = w l^2 / 10$$

- (2) Exterior support.

$$M = w l^2 / 16$$

(e) Continuous beams with unequal spans shall be analyzed and designed for the actual conditions obtaining, including unequal load distributions.

Section 432. The main longitudinal slab steel shall not be spaced more than two and one-half ($2\frac{1}{2}$) times the slab thickness. For one way slabs, transverse steel having an area of one-tenth ($1/10$) of one per cent (1%) shall be provided.

In continuous slabs, one-fourth ($\frac{1}{4}$) the main positive steel shall extend to the supports in the bottom of the slab; provided, however, that in steel framed buildings with concrete floor slabs, steel may be used to fulfill moment requirements only.

In rectangular slabs reinforced in two directions, the assumed distribution of load shall be inversely as the cubes of the spans. In such slabs, the total amount of computed reinforcement may be reduced by twenty-five per cent. (25%) by gradually increasing the spacing of the bars from the third point to the edge of the slab.

When beams are monolithic with the floor slab, a portion of the slab may be assumed as acting in flexure in combination with the beam. The width of the slab so acting shall be governed by the shearing resistance between slab and stem, but its effective width on either side of the stem shall not exceed one-sixth ($1/6$) of span of the beam, nor six (6) times the thickness of the slab on either side of the stem.

Section 434. When the unit compressive stress would exceed the allowable, steel not to exceed two and one-half per cent. ($2\frac{1}{2}\%$) of the area of the beam section may be added in the compression area to carry stress. Compressive reinforcement shall be straight and have a clear distance between the bars of at least two diameters. Protection against buckling shall be provided by ties or inverted U stirrups, spaced at not to exceed sixteen (16) times the diameter of the bar, and fully anchored.

Section 435. There shall be a clear horizontal distance between beam bars of at least one inch (1 in.) and not less than one and one-half ($1\frac{1}{2}$) times the bar diameter. There shall be at least one inch (1 in.) vertically between horizontal rows of bars.

Section 436. The lengths of horizontal beam bars shall provide for all bending moment shear and bond requirements.

Section 437. Reinforced concrete floors built with tile or other fillers forming concrete joists, shall have a minimum slab thickness of two inches (2 in.). When figured as T sections, the slab shall be monolithic with the stem. In such floors, the

width of the T flange may be taken equal to the joist spacing. Porous fillers shall be thoroughly saturated before concreting. Where good terra cotta tile is used and the joists in one row are placed opposite the center of the tiles in the adjacent rows, then the breadth of the effective shear section may be taken as the concrete joist thickness plus one-half the thickness of the exterior vertical webs of the tile.

Section 438. Footings shall be calculated by dividing the bearing areas into rectangles or trapezoids tributary to the sides of the supporting member, using the distance to the center of gravity of the area as the arm of the upward forces. The unit shearing stress, as governing diagonal tension, when computed on the forty-five (45) degree critical pyramid shall not exceed that for beams similarly reinforced.

Section 439. The length of reinforced concrete columns shall not exceed fifteen (15) times the least dimension unless the supported load be computed by the following formula:

$$P' = P(1.33 - h/120R)$$

in which P' is the safe load for a column of unsupported length— h , P is the safe load for a column of the same section with an unsupported length less than fifteen (15) times the least dimension, and R is the least radius of gyration of the section.

Columns supporting flat slab floors shall have a diameter of not less than one-thirteenth ($1/13$) the distance center to center of columns.

Section 440. The safe axial load for columns reinforced with longitudinal bars and separate lateral ties shall be in accordance with the following formula:

$$P = A'c f_c + A_s n f_c$$

in which $A'c$ is the net area of the concrete of the columns and A_s is the effective cross sectional area of the longitudinal bars. In such columns, f_c shall not exceed $0.225f'_c$, the longitudinal reinforcement shall not be more than three and one-half per cent ($3\frac{1}{2}\%$) nor less than 0.5 per cent and the ties shall not be less than one-fourth inch ($\frac{1}{4}$ in.) diameter spaced eight inch (8 in.) centers. The minimum reinforcement of such columns shall be four one-half inch ($\frac{1}{2}$ in.) round bars.

The outer one inch (1 in.) of thickness of such columns shall not be included in computing the column strength.

Section 441. The safe axial load on column reinforced with longitudinal bars and closely spaced spirals enclosing a circular core shall be determined by the following formula:

$$P = A_c f_c + n f_c p A$$

in which A is the area of the core enclosed within the spiral.

P is the total safe axial load on a column whose unsupported height is less than fifteen (15) times its least dimension.

p is the ratio of the effective area of the longitudinal reinforcement to the area of the core, and

$A_c = A(1 - p) =$ net area of concrete core.

The allowable value of f_c in this type of column shall be determined by the following formula:

$$f_c = 300 + (0.10 + 4p)f'_c$$

Longitudinal reinforcement shall

consist of at least six (6) one-half inch (1/2 in.) round bars, and its area shall be not less than one per cent (1%) nor more than five per cent (5%) of that of the enclosed core.

Spiral reinforcement shall not be less in amount than one-fourth (1/4) the volume of the longitudinal reinforcement. It shall consist of evenly spaced spirals, held firmly in place by at least three spacers, which may be a part of the main longitudinal reinforcement; the spacing of the spiral shall not be more than one-sixth (1/6) the core diameter nor more than three inches (3 in.), and such spirals shall be of cold drawn steel wire or hard grade round bars. No portion outside the spiral core of such columns shall be relied on to carry axial load.

Section 442. On spiralled columns, the compressive unit stress on the concrete within the core area under combined axial load and bending shall not exceed by more than twenty per cent. (20%) of the value, given by the formula of Section 441 for the allowable unit compressive stress.

On columns with longitudinal reinforcement only, additional bars not to exceed two per cent (2%) shall be used if required to provide for bending, and the unit compressive stress on the concrete under combined axial load and bending may be increased to 0.30 f'c. Tension in steel due to bending in columns shall not exceed sixteen thousand (16,000) pounds per square inch.

Section 443. The unit stresses per square inch on composite columns shall not exceed the following:

Steel columns filled with and encased in concrete at least three inches (3 in.) thick and wrapped with wire mesh weighing at least 0.2 pounds per square foot18000—70L/R but not more than 16000 pounds per square inch.

All composite columns shall have brackets properly fabricated to carry the transmitted floor loads. Ample sections of concrete and provisions for continuity of reinforcement shall be provided at the junctions with beams and girders.

Section 444. All column bars shall be spliced and stubbed into footings in such a manner as to transmit the stresses for which they are designed without exceeding the allowable stresses provided in the ordinance.

Section 445. Reinforced concrete bearing walls shall have a thickness of at least one-twenty-fifth (1/25) of the unsupported height, provided, however, that approved buttresses, built-in columns, or piers, may be used in lieu of greater thicknesses.

The working compressive stress in such walls shall not exceed f'c/16 when the wall is twenty-five (25) times the thickness in height, proportionally to f'c/8 when the wall is fifteen (15) times the thickness or less in height. Such walls shall be reinforced with at least one-sixth (1/6) of one per cent (1%) of steel in each direction, vertical and horizontal. Walls eight (8) inches or more in thickness shall have the steel equally distributed on each face of the wall.

The vertical steel shall not be re-

lied on to carry load unless tied and arranged as in reinforced columns.

No reinforced concrete bearing wall shall have the bars farther apart in each direction than eighteen (18) inches, regardless of whether the steel is disposed in one or two layers, nor shall less than the equivalent of three eighth (3/8) inch round bars be so used.

As used in this section, the lateral support for such walls shall consist of a reinforced concrete floor when the framing is on one side of the wall only, or of a non-fireproof floor, framing on both sides of the wall; provided that for residences frame construction properly tied may be used as support.

Eccentric loads and wind stresses shall be fully provided for.

Subject to the other requirements of this section, reinforced concrete bearing walls shall have a thickness at least equal to that specified below. (Basement walls shall be at least as thick as the walls over them).

Number of Stories	Story Thickness.									
	1	2	3	4	5	6	7	8	9	10
1..	6									
2..	6	6								
3..	7	7	6							
4..	8	7	7	6						
5..	8	8	7	7	6					
6..	9	8	8	7	7	6				
7..	9	9	8	8	7	7	6			
8..	10	9	9	8	8	7	7	6		
9..	10	10	9	9	8	8	7	7	6	
10..	12	10	10	9	9	8	8	7	7	6

Exterior bearing walls of non-fireproof buildings may be of reinforced concrete, subject to the provisions of this section, when increased fifty per cent. (50%) in thickness over the above table.

In such walls, the amount of reinforcement shall be at least one-tenth (1/10) of one per cent (1%) in each direction, horizontal and vertical, the steel being equally distributed on each face of the wall, with a maximum bar spacing of twenty-four (24) inches.

Stairway and elevator enclosures in all classes of buildings may be built of reinforced concrete, when the wall thicknesses are in accordance with the above table, and the said walls are reinforced in accordance with the provisions thereof.

Section 446. Curtain and filler walls of reinforced concrete shall not be less than four (4) inches thick, and shall be reinforced with not less than one-fifth (1/5) of one per cent. (1%) of steel in each direction, vertical and horizontal. The spacing of bars shall not be more than eighteen inches (18 in) in each direction. When curtain walls are built monolithic with columns or bearing walls, they may be reinforced to carry their own weight.

Curtain walls in one story dwellings when constructed in accordance with this section may be used as bearing walls. All such walls shall be well anchored.

Section 447. No system of reinforced concrete construction shall be used which does not admit of rational analysis in accordance with established principles of mechanics. It is not the intention of this ordinance to exclude new and improved types of construction, but any special system of reinforcement or any new type of construction shall be submitted to the

Superintendent of Buildings in ample time for him to make such tests and investigation as may be necessary to establish the safety of the new system, and assure that the stresses established herein are not exceeded.

Section 448. No water, steam, soil or vent pipes shall be built into the compression area of any concrete column, beam, girder or slab; conduits imbedded in floor slabs or other structural members shall be so placed as not to impair the structural strength.

Section 449. Continuous flat slabs reinforced with steel rods or steel mesh and supported in orderly arrangement shall conform to the following requirements:

(a) The principal design sections for critical moments in flat slabs subjected to uniform load shall be as follows:

1. For negative moment in the middle strip, a section on a panel edge which begins at a point one-fourth ($\frac{1}{4}$) the span length from the column center and extends one-half ($\frac{1}{2}$) the span length along the same panel edge.

2. For negative moment in the column strip, a section beginning on a panel edge at a point one-fourth ($\frac{1}{4}$) the span length from the column center and extending inward toward the same column to a point $c/2$ the intersection with the capital cone base, thence one-quarter ($\frac{1}{4}$) of the circumference of the base of the cone (radius = $c/2$), to the adjacent rectangular panel edge.

3. For the positive moment in the middle strip, a section beginning at the center of one edge of the middle strip and extending rectangularly a distance equal to one-half ($\frac{1}{2}$) the panel length to the other edge of the same strip.

4. For positive moment in the column strip, a section beginning at the middle of one edge of a column

strip and extending rectangularly a distance equal to one-fourth of the panel length to the other edge of the same strip.

(b) In flat slabs in which the ratio of reinforcement for negative moment in the column strip is not greater than 0.01, the numerical sum of the positive and negative moments in the direction of either side of the panel shall not be less than

$$M_o = 0.09 WL(1 - 2c/3L)^2$$

in which M_o equals the sum of the positive and negative bending moments in either rectangular direction at the principal design sections of a panel of a flat slab.

c equals the base diameter of the largest right circular cone which lies entirely within the column, (capital included), whose vertex angle is 90 degrees and whose base is one and one-half ($1\frac{1}{2}$) inches below the bottom of the slab or bottom of the dropped panel.

L equals the span length of a flat slab, center to center of columns in the rectangular direction in which moments are considered.

W equals the total live and dead load uniformly distributed over a single panel area.

(c) The moments in the principal design sections shall be those given in the following table, except that

1. The sum of the maximum negative moments in the two column strips may be greater or less than the values in the following table by not more than 0.03 M_o .

2. The maximum negative moment in the middle strip, the maximum positive moment in the middle strip and the sum of the maximum positive moments in the two column strips, may each be greater than the values in the following table by not more than 0.01 M_o .

MOMENTS TO BE USED IN DESIGN OF FLAT SLABS

Strip	Flat Slabs Without Dropped Panels		Flat Slabs With Dropped Panels	
	Negative	Positive	Negative	Positive
SLABS WITH 2-WAY REINFORCEMENT				
Column strip	0.23 M_o	0.11 M_o	0.25 M_o	0.10 M_o
2 Column strips	0.46 M_o	0.22 M_o	0.50 M_o	0.20 M_o
Middle strip	0.16 M_o	0.16 M_o	0.15 M_o	0.15 M_o
SLABS WITH 4-WAY REINFORCEMENT				
Column strip	0.25 M_o	0.10 M_o	0.27 M_o	0.095 M_o
2 Column strips	0.50 M_o	0.20 M_o	0.54 M_o	0.190 M_o
Middle strip	0.10 M_o	0.20 M_o	0.08 M_o	0.190 M_o

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(d) The total thickness of the dropped panel in inches or of the slab, if no dropped panel is used, shall not be less than,

$$t_1 = 1\frac{1}{2}'' + 0.0382 (1-1.44 c/L)L$$

times the square root of
($Rw' L_1/b_1$)

where R equals the ratio of negative moment in the two column strips to M_0 .

w' equals the uniformly distributed dead and live load per unit of floor area.

(Note: The thickness will be in inches regardless of whether L and w' are in feet and pounds per square foot or in inches and pounds per square inch.)

For slabs with dropped panels, the total thickness in inches at points away from the dropped panel shall not be less than:

$$t_2 = 1'' + 0.02 L \text{ times the square root of } w'$$

The slab thickness, t_1 or t_2 , shall in no case be less than one-thirty-second ($1/32$) of the span for floors and not less than one-fortieth ($1/40$) of the span for roof slabs. In determining slab thickness by the formulae herein given, the value of L shall be the panel length center to center of columns on the long side of the panel, L_1 shall be the panel length on the short side of the panel, and b_1 shall be the width or diameter of the dropped panel in the direction of L_1 , except that in a slab without dropped panel, b_1 shall be $0.5 L_1$.

(e) The dropped panel shall have a length or diameter in each rectangular direction of not less than one-third ($1/3$) the panel length in that direction, and a thickness not greater than $1.5 t_2$.

(f) In wall panels and other panels in which the slab is discontinuous at the edge of the panel, the maximum negative moment one panel length away from the discontinuous edge and the maximum positive moment shall be modified as follows:

1. On the column strip perpendicular to the wall or discontinuous edge, fifteen per cent. (15%) greater than that given in the table of heading (c) of this section.
2. On the middle strip perpendicular to the wall or discontinuous edge, thirty per cent. (30%) greater than that given in the table of heading (c) of this section.

In these strips, the bars used for positive moments perpendicular to the discontinuous edge shall extend to the exterior edge of the panel at which the slab is discontinuous.

(g) In panels having a marginal beam on one edge or on each of two adjacent edges, the beam shall be designed to carry the load superimposed directly upon it. If the beam has a greater depth than the thickness of the dropped panel into which it frames, the beam shall be designed to carry, in addition to the load superimposed upon it, at least one-fourth ($1/4$) of the distributed load for which the adjacent panel or panels are designed, and each column strip adjacent to and parallel to the beam shall be designed to resist a moment at least one-half ($1/2$) that specified in the table of heading (c), this section, for a column strip. If the beam used has a depth less than the thick-

ness of the dropped panel into which it frames, each column strip adjacent to and parallel to the beam shall be designed to resist the moments specified in the table of heading (c), this section, for a column strip. Where there are beams on two opposite edges of a panel, the slab and beam shall be designed as if all the load were to be carried to the beam.

(h) The negative moments on sections at and parallel to the wall or discontinuous edge of an interior panel shall be determined by the conditions of restraint.

(k) Where there is a beam or a bearing wall on the center line of columns in the interior portion of a continuous flat slab, the negative moment at the beam or wall line in the middle strip perpendicular to the beam or wall shall be taken thirty per cent. (30%) greater than the amount specified in the table of heading (c), this section, for a middle strip.

(l) The column strip adjacent to and lying on either side of the beam or wall shall be designed to resist a moment at least one-half ($1/2$) of that specified in the table of heading (c), this section, for a column strip.

(m) The point of inflection in any line parallel to a panel edge in interior panels of symmetrical slabs without dropped panels shall be assumed to be at a distance from the center of the span equal to three-tenths ($3/10$) of the distance between the two (2) sections of critical negative moment at opposite ends of the line; for slabs having dropped panels, the coefficient shall be one-quarter ($1/4$).

(n) The reinforcement bars which cross any section and which fulfill the requirements herein given may be considered as effective in resisting the moment at the section. The sectional area of a bar multiplied by the cosine of the angle which the bar makes with any other direction may be considered as reinforcement in that direction. The design shall include adequate provision for holding the reinforcement in position so as to take not only the critical moments but all moments at intermediate sections. All bars in rectangular or diagonal directions shall extend on each side of a section of critical moment, either positive or negative, to points at least twenty (20) diameters beyond the point of inflection. In addition to this provision, bars in diagonal directions used as reinforcement for negative moment shall extend on each side of a line drawn through the column center at right angles to the direction of the band at least a distance of 0.35 of the panel length, and bars in diagonal directions used as reinforcements for positive moment shall extend on each side of a diagonal through the panel center a distance equal to at least 0.35 of the panel length. No splice made by lapping the bars shall be made in regions of maximum stress except as just described.

(o) At least two-thirds ($2/3$) of all bars in each direction shall be of such length and shall be so placed as to provide reinforcement at two sections of critical negative moment and at the intermediate section of critical positive moment.

(p) Continuous bars shall not all

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be bent up at the same point of their length, but the zone of bending shall extend on each side of the point of inflection and shall occupy a width of at least one-fifteenth (1/15) of the panel length. Mere sagging of the bars is prohibited. In four-way reinforcement, the position of the bars in both diagonal and rectangular directions may be considered in determining the sufficiency of the bending zone width.

(q) The following formula shall be used in computing the tensile stress f_s in the reinforcement of flat slabs; the stress so computed shall not exceed the unit stresses specified in Section 429.

$$f_s = R M_o / A_s j d$$

where $R M_o$ equals the moment, specified in the table of heading (c) of this section for two column strips or for one middle strip.

A_s equals the effective cross sectional area of the reinforcement which crosses any of the principal design sections and which meets the requirements of length bending, continuity and placing specified in this section.

(r) The following formula shall be used in computing maximum compressive stress in the concrete in flat slabs; the stresses so computed shall not exceed those specified in Section 429:

(1) Compression due to negative moment $R M_o$ in the two column strips.

$$f_c = (3.5 R M_o / k j b_1 d^2) (1 - 1.2 c / L)$$

(2) Compression due to positive moment $R M_o$, in the two column strips, or negative or positive moment in the middle strip.

$$f_c = 6 R M_o / k j L_1 d^2$$

(s) The unit shearing stress shall not exceed the value of v in the formula:

$$v = 0.02 f'_c (1 + r)$$

nor in any case shall it exceed $0.03 f'_c$.

The unit shearing stress shall be computed on

(1) A vertical section which lies at a distance in inches of $t_1 - 1\frac{1}{2}$ from the edge of the column capital; and

(2) A vertical section which lies at a distance in inches of $t_2 - 1\frac{1}{2}$ from the edge of the dropped panel.

In no case shall r be less than 0.25. Where the shearing on section (1) is being considered, r shall be taken as the proportional amount of reinforcement crossing the column capital; where the shearing stress at section (2) is being considered, r shall be taken as the proportional amount of reinforcement crossing entirely over the dropped panel.

(t) The moment coefficients, moment distribution and slab thicknesses specified herein are for slabs which have three or more rows of panels in each direction, and in which the panels are approximately uniform in size. For structures having a width of one or two panels, and also for slabs having panels of markedly different sizes, an analysis shall be made of the two moments developed in both slab and columns, and the coefficients modified accordingly. Slabs with panelled ceilings or with depressed panelling shall fulfill the requirements herein given.

(u) Provision shall be made in

both wall and interior columns for the bending moment which may be developed by unequally loaded panels, eccentric loading, or unequal spacing of columns.

The resistance of any wall column to bending in a direction perpendicular to the wall shall not be less than

(1) For columns with square capitals

$$0.04 w' L_x (L_y - 0.75c)^2$$

(2) For columns with round or octagonal capitals

$$0.04 w' L_x (L_y - 0.66c)^2$$

in which L_x is the panel length perpendicular to the wall, and L_y is the panel length parallel to the wall.

The moment in such columns may be reduced by the balancing moment of the weight of the structure which projects beyond the center line of the supporting wall column. Where the column extends through the story above, the moment shall be divided between the upper and lower column in proportion to their relative stiffness.

Section 450. Before construction is begun on any reinforced concrete structure which is required to be supervised, the owner of the proposed structure shall employ a supervisor who shall be possessed of the qualifications herein required for same.

The supervisor for concrete construction shall be a person thoroughly qualified by knowledge and experience in the design and the construction of reinforced concrete structures. He shall have a thorough knowledge of the design of concrete mixtures by the following methods: (1) Arbitrary proportions; (2) Density of aggregate; (3) Density of Concrete; (4) Sieve Analysis; (5) Surface area of aggregate; (6) Fineness Modulus. He must at all times keep himself well informed about the developments in the science of designing concrete mixtures. He shall also know the relation between the strength of concrete and the water-cement ratio. He shall have direct control of all factors other than design which affect the strength of the structure. He shall keep neat and accurate records of all tests and progress of the work, and of all other items involving the fitness of materials or workmanship for the work in hand. He shall:

(1) Ascertain the sieve analysis of the aggregate.

(2) See that only the specified proportions of cement, sand and gravel are used in the construction.

(3) See that the time of mixing the concrete is as herein specified.

(4) Regulate the quantity of water in the mixture in accordance with the provisions of Section 412.

(5) Make a sufficient number of slump tests to know the slump of all concrete used, and record the results of such tests.

(6) See that the steel is placed in accordance with the approved plans and the provisions of this ordinance.

(7) Supervise the making of the test cylinders and record their strength at the age of twenty-eight (28) days.

(8) See that green concrete is properly cured and that adequate protection is given work in cold weather.

Should it become necessary to make any change in aggregate used in the work, the supervisor shall promptly report such condition to the Superintendent of Buildings.

The records of the supervisor shall be open at all times to the Superintendent of Buildings and his authorized representatives and shall be filed with the Superintendent of Buildings at the completion of the work.

It shall be the duty of the Superintendent of Buildings to determine by an examination that every supervisor is possessed of the knowledge and experience herein required for such position and it shall be unlawful for any person to place any concrete in any structure requiring supervision unless there be present a supervisor who has been found competent by the Superintendent of Building to supervise the building of said structure.

The cost of the supervision and of testing cement, steel, aggregate and concrete cylinders shall be borne by the owner.

Section 451. When poor workmanship, or materials, or new methods of design make it necessary to determine the strength of a reinforced concrete structure, the whole or portion of it shall be subjected to a load test upon notice from, and under the direction of, the Superintendent of Buildings. Such tests shall be made when the concrete in the structure is not less than twenty-eight (28) days old. The test load carried by the structure shall be equal to twice the sum of the live and dead loads for which it is designed; the dead weight of the structure being considered as

part of the load. The structure shall not be approved unless it sustains the test load without signs of failure.

Section 452. It shall be unlawful to maintain as a supervisor on any concrete construction any person who fails, neglects or refuses to comply with any of the provisions of this ordinance, or with any lawful requirement of the Superintendent of Buildings.

Section 453. In reinforced concrete skeleton construction or in steel skeleton construction, or on any structure having exterior concrete walls veneered with brick, stone or terracotta, angles or other structural shapes required to carry wall facings shall be bolted or secured in such a manner that the weight of the facing will be borne directly by the structural frame or bearing wall.

In skeleton construction, the veneer facing shall be carried at each floor level, and the supports shall be wide enough for purposes of stability and for safe bearing area.

In buildings over two stories high, the veneer facings of concrete bearing walls shall be carried on angle iron shelves or other adequate support at every floor level.

Section 454. All structural steel shall comply with the standard specifications of the American Society for Testing Materials, as published in the Carnegie Pocket Companion, twenty-second edition, Serial Designation A9-16, which specifications were filed in the office of the City Comptroller and ex-officio City Clerk on the 19th day of December, 1921, and are now on file therein, as File No. 83316, and

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by such reference are hereby made a part hereof to the same extent as if herein fully set forth.

Cast iron shall be of good foundry mixture producing a tough gray iron.

Cast steel shall be free from cracks, comparatively free from porosity, tough and ductile.

Structural steel may be either Bessemer or open hearth.

Section 455. The maximum allowable working stresses in pounds per square inch in steel and iron shall not exceed those given in the following table:

	Rolled Steel	Cast Steel	Cast Iron
Tension—net section	16000	16000	
Compression — gross section ..	16000	16000	10000
Bending, extreme fibre	16000	16000	
Bending on extreme fibre compression			10000
Bending on extreme fibre tension			3000
Bending on extreme fibre pins	24000		
Shear—shop driven rivets and pins	12000		
Shear—field driven rivets	10000		
Shear on rolled shapes	12000		
Shear on plate girder webs, gross section ..	10000		
Shear on brackets			2000
Bearing, shop driven rivets per cent. (25%) and pins	24000		

In steel tanks where there is no chance of an overload, the above stresses may be increased twenty-five per cent. (25%).

Section 456. The allowable compressive stress per square inch for columns shall be determined by the following formulae:

Steel columns— $16000 - 70 \frac{L}{R}$ but not to exceed 14000 pounds.

Cast iron columns— $10000 - 60 \frac{L}{R}$.

For columns encased in concrete, see **Section 443**.

Stresses due to eccentric loads shall be fully provided for in all columns.

For stresses produced by wind load combined with those of live and dead load, the unit stress may be increased fifty per cent. (50%) over the stresses herein specified; but the section shall not be less than required if the wind forces be neglected.

The length of rolled steel columns shall not exceed one hundred twenty (120) times the least radius of gyration, except for struts for wind bracing only may be not to exceed one hundred fifty (150) times the least radius of gyration.

The length of cast iron columns shall not exceed seventy (70) times the least radius of gyration.

Section 457. In proportioning tension members, the diameter of rivet holes shall be taken one-eighth ($\frac{1}{8}$) of an inch larger than the nominal diameter of the rivet. In proportioning rivets, the nominal diameter shall be used.

Pin connected tension members shall have a net section through the pin hole at least twenty-five per cent. (25%) in excess of the net section of the member, and the net section back of the pinhole parallel with the axis of the member shall not be less than the net section of the body of the member.

Section 458. Plate girder webs shall have a thickness of not less than $\frac{1}{160}$ th of the unsupported distance between flange angles. The webs shall have stiffeners generally in pairs, over bearings, at points of concentrated loading, and at other points where the thickness of the web is less than $\frac{1}{60}$ th of the unsupported distance between flange angles with a maximum of six (6) feet.

The lateral unsupported length of plate girders or of rolled steel beams shall not exceed forty (40) times the width of the compression flange. When the unsupported length exceeds ten (10) times the width of the compression flange, the stress per square inch in the compression flange shall not exceed

$$19000 - 300 \frac{L}{B}$$

where B is the flange width and L the unsupported length.

Section 459. When necessary to secure compliance with the provision of this ordinance, experts shall be employed to supervise the mill, shop and field work of structural steel, who shall file copies of their reports on the progress of the work, and no work shall be concealed or built upon until the Superintendent of Buildings has been furnished proof that it conforms to the accepted standard.

Section 460. In steel skeleton construction, the beams and girders shall be riveted at their junctions. If columns made of rolled shapes are used, their different parts shall be riveted together, and the beams and girders shall be riveted to connect them to the columns.

If cast iron columns are used, the column sections shall be bolted together by at least four (4) bolts not less than three-fourths ($\frac{3}{4}$) inch in diameter, and beams and girders shall be bolted to the columns. All bolt holes in cast iron columns shall be drilled.

Cast iron columns shall not be used in buildings of greater height than twice the width, nor in buildings over eighty (80) feet high.

Wherever it is found impossible to rivet connections as herein prescribed, cold rolled or turned bolts of exact fit and diameter in reamed holes shall be used, with allowable stresses as for field rivets.

Section 461. All structural members which are temporarily bolted together shall be well bolted in every alternate hole.

All structural steel and iron work shall be firmly braced and held in place during erection and until it is firmly riveted up and secured in its correct position by metal braces or by being enclosed in masonry.

Permanent steel braces shall be used in the lower stories of steel framed buildings over eleven stories high. The number of stories so braced, independently of the requirements of wind bracing, shall not be

less than 2 (N—10), in which N is the total number of stories. Buildings over twenty stories high shall be braced in all stories.

All steel trusses shall be riveted, and all trusses shall be rigidly held in position, both permanently and temporarily, by effective lateral and sway bracing.

Section 462. All structural details and workmanship shall be at least equal to the requirements of the Specifications for Steel Structures of the American Bridge Company, published in the twenty-second edition

of the Carnegie Pocket Companion, page 136, a copy of which specifications were filed in the office of the City Comptroller and ex-officio City Clerk on the 19th day of December, 1921, and are now on file therein as File No. 83316, to which reference is made and by such reference made a part hereof to the same extent as if herein fully set forth.

Section 463. All structural steel shall be clean and free from loose rust and scale, and all steel, except that to be imbedded in concrete, shall have at least two coats of steel protective paint.

PART 5 FIRE HAZARDS REGULATIONS

Section 501. In any building, a floor occupied as a place of habitation, refuge or detention shall, except as hereinafter provided, be divided by fire walls, so located that the area of the floor shall not exceed the number of square feet indicated in the following table:

Mill Buildings	Ordinary Masonry Buildings	Frame Buildings
12,000	8,000	6,000

In any building, a floor occupied by one or more stores, offices, factories, workshops, garages, warehouses, stables, hangars, or for purposes producing an equivalent fire hazard, shall, except as herinafter provided, be divided by fire walls so located that the area of no floor shall exceed the number of square feet indicated in the following table, except that fireproof office buildings are not limited as to the area of any floor used exclusively for office purposes:

	Fireproof Buildings	Mill Buildings	Ordinary Masonry Buildings	Frame Buildings
On lots with more than one street frontage	20,000	15,000	10,000	8,000
On lots with only one street frontage	18,000	14,400	9,000	7,200

Section 502. In the fourth building district, one-story factory buildings manufacturing exclusively products which are mainly composed of incombustible material, and one-story warehouses used entirely for the storage of incombustible material, are not restricted as to the undivided floor area of the first story if the building is constructed of fireproof, mill or ordinary masonry construction, or frame construction having floor, roof and wall sheathing of two (2) inch by six (6) inch tongued and grooved, and having posts not less than eight (8) inches in least dimension, and other structural members not less than six (6) inches in least dimension, except that braces and girts may be four (4) inches in least dimension, or when the material is constructed of equally fire resistive material.

If located in the fourth building district, two-story, fireproof, mill, ordinary masonry or frame buildings, provided the latter are constructed as specified in this section for one-story, frame buildings, may, if used exclusively for the manufacturing therein of products which are composed mainly of incombustible material, have undivided first and second floor areas one-third (1/3) greater than indicated in the above table.

Provided, further, that any building having floor areas increased as

permitted above shall be equipped in each story with one or more two (2) inch standpipes which shall be connected to city water mains and shall be equipped with fifty (50) feet of one and one-half (1½) inch serviceable, unlined, linen hose, and a play pipe not less than eight (8) inches long and having a three-fourth (¾) inch outlet attached to each. The number of standpipes on each floor shall be such that all portions of each story will be within fifty-five (55) feet of a standpipe.

Section 503. Store buildings of fireproof construction having all elevators, stairways and other openings through the floors enclosed with fireproof construction and fire doors are not restricted as to the undivided floor area, providing each such building is equipped throughout with an automatic sprinkler system constructed as hereinafter specified.

The allowable floor area of any building having its stairwells, elevator shafts and other floor openings enclosed as required by this Code, and having its means of egress complying in all respects with the Code, may be increased one hundred per cent (100%) if the building is equipped throughout with an automatic sprinkler system.

Section 504. In non-fireproof buildings, all attics or unfinished spaces between the ceilings and roofs must be divided into compartments having areas not to exceed thirty-six hundred (3600) square feet. The dividing partitions shall, if possible, be placed immediately above a partition in the top story of the building and shall be constructed of two (2) thicknesses of one-inch matched or lapped lumber with plasterboard between. The plasterboard shall be fitted tightly around all joists, beams, etc. Each dividing partition must contain a self-closing door not smaller than two (2) feet in least dimension, which closes into a two (2) inch rabbet on sides, top and bottom. Such doors shall be of the same construction as the dividing partitions.

No shaft, chute, vent or duct may open into an attic or other unfinished space unless such attic or unfinished

space is of fireproof construction and contains no combustible material.

Section 505. Adjoining buildings may be connected by openings, whether the buildings be of similar or different classes of construction. When two (2) buildings are connected they shall be considered as separate buildings except where the construction, area and occupancy of the buildings, when considered as a unit, would permit of their being constructed as a single building without division walls. Where the two (2) buildings may be constructed as one, fire doors are not required on the openings between the two (2) buildings, but in all other cases said openings shall be equipped with fire doors as required elsewhere in this Code for the openings in division walls.

Section 506. All division walls, except in frame buildings, must be constructed of masonry and conform to the requirements for masonry walls found in other parts of this Code. Masonry division walls must extend from the ground to three (3) feet above the highest adjacent roof of the building. Walls having offsets shall be considered as being continuous, provided the several parts of the wall are connected by reinforced concrete slabs so as to make the separation between the divisions of the building complete. The thickness of said slabs shall be not less than four (4) inches.

In frame buildings, fire walls shall be constructed of two (2) thicknesses of two (2) inch tongued and grooved lumber not more than six (6) inches wide placed vertically and breaking joints, and having plasterboard or galvanized sheet metal between them; or, if plastered on both sides, using metal lath or plasterboard, may be constructed of two (2) thicknesses of two (2) inch, square edged, lumber placed vertically and breaking joints.

Division walls of wood must be continuous from the ground to three (3) feet above the highest adjacent roof of the building, and shall have no beam, joint or floor passing through or entering them.

The openings in division walls must be minimized, both as to number and size, and if the wall is required by this Code to be of masonry, the openings in it shall be protected on both sides of the wall by fire doors.

If the division wall be in a frame building, the openings must be pro-

tected on one side of the wall by a fire door.

Section 507. Distances between buildings, or between lot lines and buildings, shall be measured from the extremity of the projections.

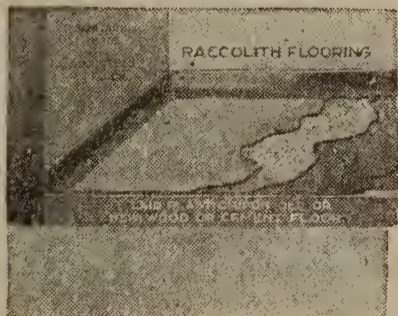
Except as otherwise provided in this section, frame residences shall be not less than eighteen (18) inches from the lot lines of adjacent property.

Except as otherwise provided in this section, frame buildings other than residences shall be no less than three (3) feet from the lot lines of adjacent property.

Any frame building may be built up to the lot line of adjacent property if the walls and parts of walls of said building which are less than three (3) feet from the lot line extend from the ground to one (1) foot above the roof and are constructed of fireproof material not thinner than four (4) inches or of double tongued and grooved lumber placed vertically with broken joints, or of solid two (2) inch by four (4) inch laminated construction covered on both sides with either plaster, sheet metal, wood sheathing or equivalent. All openings in said walls shall be fireproof unless the building is occupied as a hotel, office building or as a place of habitation or refuge.

Frame buildings other than residences may be constructed up to the lot line of adjacent property without fire resisting walls as above described if said buildings are not over four hundred (400) square feet in area, not over twelve (12) feet high, not less than ten (10) feet from the door or window of a place of habitation or refuge on adjacent property, and if not less than three (3) feet from any frame building on adjacent property except one which is not larger than four hundred (400) square feet nor higher than twelve (12) feet, and which is not a residence.

Two or more frame buildings on the same lot shall, unless separated from each other by a space of three (3) feet or more, or by a division wall, be considered as one building: Provided, that one frame garage having not more than two hundred (200) square feet of total floor area may be constructed outside of and against the wall of a plastered residence, without being considered as a part of said residence, except for the purpose of regulating the proximity of the entire structure to the lot lines of adjacent property and buildings



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located thereon. However, if the garage extends under any part of the residence or is within three (3) feet of any unplastered part of a frame exterior wall of said residence, all parts of the garage which are within three (3) feet of the residence shall be constructed as elsewhere herein required for a Class "B" garage within a residence.

Section 510. Where automatic sprinklers are required by this Code, they shall be installed in accordance with the following specifications:

A—Sprinkler deflectors shall be parallel to ceilings, roofs or the incline of stairs, but when installed in the peak of a pitched roof they shall be horizontal. Distance of deflectors from ceilings of mill or other smooth construction, or bottom of joists of open joist construction, shall be not less than three (3) inches nor more than ten (10) inches. Note particularly that the rule for distance refers to the deflector of the sprinkler.

B—The space beneath the balconies shall be sprinklered in all cases where the balconies are over forty-two (42) inches wide.

C—The distance from a wall or partition to the first sprinkler shall not exceed one-half ($\frac{1}{2}$) the allowable distance between sprinklers in the same direction.

D—A line of sprinklers shall be run on each side of each partition. Cutting holes through a partition to allow a sprinkler on one side thereof to distribute water on the other side is not permitted.

E—Under mill ceiling (smooth solid plank and timber construction, 5 to 12 foot bays), one line of sprinklers shall be placed in the center of each bay and the distance between the sprinklers on each line shall not exceed the following:

8 feet in 12-foot bays
9 " " 11 " "
10 " " 10 " "
11 " " 9 " "

12 feet in 5 to 8-foot bays.

Measurements shall be taken from center to center of timbers.

Ceilings of mill construction having bays less than three (3) feet wide shall be treated as open joist construction and sprinkler heads spaced accordingly.

F—Under open joist construction, the lines shall be run at right angles to the joists and the sprinklers "staggered spaced," so that the heads will be opposite a point half way between sprinklers on adjacent lines, and the distance between sprinklers not exceeding eight (8) feet at right angles to the joist or ten (10) feet parallel with joists; the end heads on alternate lines being not more than two (2) feet from wall or partition.

G—Under smooth finish, sheathed or plastered ceilings, in bays six (6) to twelve (12) feet wide (measurement to be taken from center to center of timber, girder or other projection or support forming the bay), one line of sprinklers shall be placed in center of each bay, and distance between the sprinklers on each line shall not exceed the following:

8 feet in 12-foot bays.
9 " " 11 " "
10 " " 6 to 10-foot bays.

Bays in excess of twelve (12) feet in width and less than twenty-three (23) feet in width shall contain at least two (2) lines of sprinklers;

bays twenty-three (23) feet in width or over shall have the lines therein not over ten (10) feet apart. In bays in excess of twelve (12) feet in width, not more than one hundred (100) square feet ceiling area shall be allotted to any one sprinkler.

H—Under a pitched roof sloping more steeply than one (1) foot in three (3), sprinklers shall be located in peak of roof, and those on either side of peak spaced according to the above requirements. Distance between sprinklers shall be measured on a line parallel with the roof. Where the roof meets the floor line, sprinklers shall be placed not over three and one-half ($3\frac{1}{2}$) feet from where roof timbers meet the floor.

In sawtooth roof, the end sprinklers on the branch line shall be not over two and one-half ($2\frac{1}{2}$) feet from the peak of the sawtooth.

I—In no case shall the number of sprinklers on a given size pipe on one floor of one fire section exceed the following:

Size of pipe	Maximum Number Sprinklers
$\frac{3}{8}$ inch	1
1 inch	2
$1\frac{1}{4}$ inch	3
$1\frac{1}{2}$ inch	5
2 inch	10
$2\frac{1}{2}$ inch	20
3 inch	36
$3\frac{1}{2}$ inch	55
4 inch	80
5 inch	140
6 inch	200

J—Every automatic sprinkler system shall be connected with an adequate water supply by pipe of sufficient size to protect the largest total floor area between division walls covered by the system.

K—All valves on connections to water supplies and in supply pipes to sprinklers shall be outside screw and yoke.

L—Check valves shall be installed in all sources of supply. Each system shall be provided with a gate valve so located as to control all sources of water supply except that from Fire Department connections. All gate valves controlling water supplies for sprinklers shall be located where readily accessible.

M—All gate valves in supply pipes to automatic sprinklers, whether or not of indicator or post pattern, must be locked open with a strap and lock.

N—All sprinkler pipes and fittings shall be so installed that they can be thoroughly drained.

O—Each system shall be equipped with hose inlets located in a place which is accessible to firemen and at least four (4) feet from any non-fireproof opening into the sprinklered area. The inlets shall have capacity to supply the entire system except that there need not be more than two (2) two and one-half ($2\frac{1}{2}$) inch inlets for any part of the building between division walls.

P—Sprinklers shall be located in an upright position except where they are placed within three (3) inches of a ceiling which is entirely flat.

Q—Every system shall be provided with a one-fourth ($\frac{1}{4}$) inch connection for pressure gauge. Such connection shall be controlled by a valve and be on the system side of the main control valve.

R—Except as otherwise provided, automatic sprinkler heads shall have a smooth one-half (½) inch opening and be so constructed as to open without fail at a temperature within twenty-five degrees (25°) Fahr. of that indicated on the head, which temperature shall be in accordance with the following requirements.

S—The temperature conditions where sprinklers are to be installed shall be determined and the fusing point of sprinklers used shall not exceed those indicated below:

For ceiling temperatures of 100 degrees or less, install 155 to 165 degree heads.

For ceiling temperatures exceeding 100 degrees but not 150 degrees, install 212 degree heads.

For ceiling temperatures exceeding 150 degrees but not 225 degrees, install 286 degree heads.

For ceiling temperatures in excess of 225 degrees, install 360 degree heads.

T—Where the Superintendent of Buildings has reason to believe that an installation is defective, he shall require the same tested at a pressure of one and one-half (1½) times the normal pressure but not less than one hundred fifty (150) pounds per square inch. The test pressure shall be maintained for two (2) hours and any part of the system found defective shall be reconstructed.

Section 511. Jumbo sprinkler systems shall comply with the following paragraphs in the requirements for automatic sprinkler systems:

A, C, D, L, O, P, S, T.

The Jumbo sprinkler heads shall have one (1) inch smooth orifices and shall be so constructed as to open without fail at a temperature within twenty-five degrees (25°) Fahr., of that indicated on the head, which temperature shall be in accordance with the above requirements for sprinklers.

Jumbo sprinkler heads shall not be assumed to protect more than four hundred (400) square feet of floor area, nor any portion of floor beyond a horizontal radius of fourteen (14) feet, ten (10) inches.

A Jumbo sprinkler system need not be connected to a water supply of sufficient capacity to supply the entire system but must be connected to the water service which supplies the building in which the system is located. The connection must be of the same size as the service pipe.

In no case shall the number of Jumbo sprinklers on a given size pipe on one floor of one fire section exceed the following:

Size of Pipe	Maximum Number of Sprinklers
1¼ inch	1
1½ inch	2
2 inch	3
2½ inch	5
3 inch	9
3½ inch	14
4 inch	20
5 inch	35
6 inch	50

Section 512. Every building four (4) stories or more in height above the lowest street or alley grade shall have at least one (1) galvanized wrought iron standpipe serving each undivided area, or in case no division wall is required, there shall be one

for each twenty thousand (20,000) square feet, or fraction thereof. The above areas shall be taken at the fourth floor level. Each standpipe shall be situated not more than one (1) foot from the fire escape on exterior wall and shall extend from five (5) feet above the ground to and above the roof. At each floor and on the roof there shall be branches with good two and one-half (2½) inch valves and National standard two and one-half (2½) inch male couplings and at the bottom an automatic Siamese inlet with female couplings of the same size and standard. Branches at each story shall be directed toward the nearest doors or windows.

The dimensions of standpipes shall be as follows: Four (4) inches in diameter for four (4) story buildings, with a two (2) way inlet at the bottom. If a building is from five to ten stories in height, the portion of the standpipe on the four (4) upper stories shall be four (4) inches in diameter, and on the stories below five (5) inches in diameter, with a three (3) way inlet at the bottom. If a building is over ten (10) stories in height, the portion of the standpipe on the four (4) upper stories shall be four (4) inches in diameter; the portion on the six (6) stories immediately below them shall be five (5) inches in diameter, and on all the stories below the upper ten (10), the standpipe shall be six (6) inches in diameter, with a four (4) way inlet at the bottom. Each standpipe shall be fastened securely by bolts through the wall.

Section 513. In every cellar, basement or sub-basement, the portion which is used for the storage of combustible materials, if separated from the rest of the basement by mill construction with fire doors, and if not so separated, then the entire basement, shall be provided with an automatic sprinkler system so constructed as to protect every square foot of floor area: Provided, that in such cellar, basement or sub-basement constructed in the first or second building districts prior to the time when the Building Code required it to be equipped with automatic sprinklers, or heretofore or hereafter constructed outside of the first and second building districts, there may be installed in lieu of an automatic sprinkler system a Jumbo Sprinkler System.

Further provided, that no sprinkler system shall be required in residences; in buildings having a total basement or cellar area of less than two thousand five hundred (2500) square feet; in basements and cellars containing not more than three hundred (300) square feet of floor area which is used for the storage of combustible materials, if said space is enclosed with plastered partitions containing no openings into any other part of the building, except openings equipped with self-closing doors containing no glass other than wire glass; in one story buildings of ordinary masonry construction or better, which have a basement area of not to exceed seven thousand two hundred (7200) square feet, which contain no partitions, which are open on two (2) streets or a street and alley, and which have ceilings at least one-third (1/3) of the story height above the

grade at windows on both sides, thereby giving access through which firemen can control fire in any part of the basement; in basement rooms which are separated from unsprinklered rooms by mill partitions containing no openings equipped with fire doors and which are entirely within a radius of forty (40) feet from windows fronting on streets, alleys or exterior courts, not less than sixteen (16) feet wide, which windows shall be located where the ceiling is at least one-third of the story height above grade.

Section 514. Every building five (5) stories or more in height which is used as a warehouse, factory, workshop, garage or store shall be equipped throughout with an automatic sprinkler system.

Section 515. All fire doors, except those on passenger elevators and on exterior openings, shall be either self-closing or automatic, and shall be so constructed, hung and equipped that they will close without fail when released and will fit tightly at top, sides and bottom, so as to prevent the spread of fire through the door opening.

Fire doors are hereby divided into three classes, namely, A, B and C.

Class A fire doors may be installed in lieu of Class B and C doors, while Class B fire doors may be substituted for Class C doors.

Any style of fire door which is not hereinafter described but which has been found by scientifically conducted tests to be capable of resisting fire as effectively as the doors described under a certain class, shall be approved as equivalent to said class.

No vertically acting fire doors except rolling steel doors and doors constructed and equipped so that half of the door slides up while the other half slides down, the one being counterbalanced by the other, shall be permitted on openings in excess of fifteen (15) square feet.

No sliding fire doors having widths in excess of three (3) feet shall be hung in pairs so that the doors strike each other in closing.

Swinging fire doors shall not be used on openings in excess of six (6) feet wide and twelve (12) feet in height, except that where hung in pairs the opening may be ten (10) feet wide and twelve (12) feet in height.

Sliding fire doors shall be mounted on a heavy track inclined from $\frac{3}{4}$ inch to one inch per foot. Wall bolts shall be so spaced that one bolt will be located directly opposite each hanger when the door is closed and so that front and back pumpers can be attached; bolts for track, binders and stay rolls shall be three-fourths ($\frac{3}{4}$) inch in diameter, extend through the wall and be provided with adequate washers on the opposite side of the wall. Sliding doors shall extend four (4) inches beyond the opening at the sides and top and when closed shall fit close at bottom upon the sill, which must be of masonry or steel if the wall is masonry.

Swinging Class "A" fire doors shall be provided with strong wrought iron hinges bolted through doors and either bolted through walls or securely fastened to a steel wall frame. They shall either extend four (4)

inches over the masonry at sides and tops of the openings or close into a two (2) inch rabbet at top and sides.

Swinging Class "B" fire doors shall be hung on hinges as required for Class "A" fire doors or shall be hung on hinges which are fastened to doors and jambs by screws not less than one and one-half ($1\frac{1}{2}$) inches long, which must be screwed into place and not driven: Provided, that no hinges shall be fastened with screws which are set parallel to the fibres of the timber.

All swinging doors shall be provided with hardware which will prevent rebound when the door is slammed.

When fire doors are placed in masonry walls or partitions, none of the wood framing around the door opening shall be permitted to extend into the masonry. Where fire doors are permitted to be hung to wood jambs set in the openings in fireproof walls or partitions, the jambs must be bolted either to the wall or to a steel frame set in the wall. The jambs must have all exposed surfaces and all parts of the jamb within one (1) inch of any exposed edge covered with sheet metal. There shall be no space left between jambs and the wall or partition in which the door is placed.

Unplastered wood division walls shall have the wood work around the door openings covered with sheet metal back to a distance of eight (8) inches from the opening. Other unplastered wood walls and partitions which are required to have the openings equipped with fire doors shall be covered with metal a distance of four (4) inches back from the opening. Wherever fire doors are required on openings, any wood framing in the opening shall be covered with metal where exposed.

Section 516. Fire doors constructed in accordance with the following specifications for tin clad fire doors, rolling steel fire doors, hollow metal doors or solid steel doors shall be known as Class "A" fire doors.

1. Tin clad fire doors shall be constructed of kiln dried tongued and grooved fir or cedar lumber, free from sap wood, dry rot and knots, except that sound, tight knots less than one-fourth ($\frac{1}{4}$) inch in diameter will be permitted. The lumber shall not be less than three-fourths ($\frac{3}{4}$) inch nor more than seven-eighths ($\frac{7}{8}$) inch thick, nor shall it be less than three (3) inches nor more than eight (8) inches in width.

The boards in both outside layers of 3-ply doors and in one layer of 2-ply doors shall be placed vertically, while in the other layer they shall be placed horizontally.

All layers shall be thoroughly nailed together with cut nails of the clinch type, which shall be three (3) inches long for 3-ply and two (2) inches long for 2-ply doors, having their points turned back and thoroughly clinched in the face of the core. All rows of nails shall be placed one (1) inch from each edge of each horizontal and vertical board in each layer when the boards are from four and one-half ($4\frac{1}{2}$) to eight (8) inches width, and shall be on the center line of three (3) and four (4) inch boards. The spacing of nails in both horizontal and vertical rows

shall not exceed twice the width of four and one-half ($4\frac{1}{2}$) to eight (8) inch boards nor five times the width of three (3) and four (4) inch boards. A row of nails shall be placed within one and one-half ($1\frac{1}{2}$) inches from the edge of the core and spaced so that there will be a nail in the center of the end of each board. Not more than two (2) pieces shall be used in any one continuous strip in either outside layer, nor more than three (3) pieces in the middle layer, while at least every other strip in outside layers shall be full length boards. The top edge of sliding doors shall be cut on a slope so as to be parallel with the track.

The cores shall be covered with sheets of tin not larger than fourteen (14) inches by twenty (20) inches, which tin shall be Terne Plate of basic open hearth steel of a thickness weighing not less than one hundred three (103) pounds net per box of one hundred twelve (112) sheets, exclusive of the coating. The coating shall be of an alloy composed of not less than twenty-five (25) per cent. tin and not more than seventy-five (75) per cent. lead, and shall be applied so as to weigh not less than ten (10) pounds per box of one hundred twelve (112) sheets.

Sheets shall be joined with underwriters lock joints and nailed to the core with No. 12, No. $12\frac{1}{2}$ or No. 13 gauge quarter-barbed or full-barbed wire nails with flat heads, and left unsoldered. The nails shall be driven inside the lap, and joints shall be hammered down over the nail heads.

Tin clad doors larger than eighty (80) square feet, and those on masonry division wall openings shall be 3-ply doors. On other openings they may be 2-ply doors.

2. Rolling steel fire doors shall be constructed of interlocking slats made of galvanized steel not lighter than No. 16 gauge. The sides of the doors shall run in a slot and the doors shall fit tightly against the wall at the top and the sill at the bottom. They shall be hung on a winding shaft and shall have helical springs of sufficient strength to properly balance the door at any time. The coils shall be covered with a hood made of galvanized iron of No. 24 gauge, or heavier, which shall be securely fastened to the wall and so constructed and fitted to prevent the transmission of fire. Rolling steel fire doors, if placed on exits, shall be constructed so that they can be easily raised, without readjustment, by one person after they have closed automatically.

3. Hollow metal doors shall be constructed of two (2) thicknesses of sheet metal not lighter than No. 18 gauge. The stiles and rails shall be securely welded together at the intersection, and shall be not less than one and three-fourths ($1\frac{3}{4}$) inches thick. The panels shall be made of two (2) thicknesses of steel not lighter than No. 20 gauge, with at least one-quarter ($\frac{1}{4}$) inch asbestos between. The sheets of steel forming the panels shall be securely fastened together. Heavy steel plates shall be welded to the various members for the purpose of attaching butts, locks, etc.

4. Solid steel doors shall be constructed of sheet steel not lighter than No. 14 gauge securely fastened to a frame of $2'' \times 2'' \times \frac{1}{4}''$ angles placed

not farther apart than twenty-four (24) inches horizontally and thirty-six (36) inches vertically.

Fire doors constructed and equipped in accordance with any of the following specifications shall be known as Class "B" fire doors:

1. Rolling steel fire doors as specified for Class "A" doors, except that the metal may be No. 20 gauge for interior openings and No. 22 gauge for exterior openings.

2. Kalamein doors which shall be constructed of kiln-dried lumber, free from sap wood, dry rot and knots, except that sound, tight knots less than one-fourth ($\frac{1}{4}$) inch in diameter will be permitted. The wood surfaces of stiles, rails and panels shall be entirely covered with metal not thinner than No. 26 gauge for plain surfaces and No. 28 gauge for moldings. The metal and wood shall be brought tightly together by drawing same through steel dies which press a clincher edge of the metal into the wood. Kalamein panels shall have a wood core, not thinner than one-half ($\frac{1}{2}$) inch, and shall be not larger than seven hundred twenty (720) square inches. The metal shall be cemented to the core of the panel under heavy pressure with fireproof cement. The rails of doors shall be tenoned into mortice stile of doors two-thirds ($\frac{2}{3}$) the width of the stile and three-fifths ($\frac{3}{5}$) the width of the rail, and shall be well glued and shall have steel dowels in all tenons. Panels shall extend into grooves of rails not less than five-eighths ($\frac{5}{8}$) of an inch. Moldings shall have the metal attached to the wood by clincher edges. Moldings shall be attached to doors with nails or screws. Panels of quarter-inch wire glass shall be permitted if securely fastened and if not larger than seven hundred twenty (720) square inches.

Doors constructed in accordance with the following specifications shall be known as Class "C" fire doors: Metal covered Class "C" doors shall be constructed of two (2) thicknesses of kiln-dried tongued and grooved fir or cedar lumber, free from sap wood, dry rot and knots, except that sound, tight knots less than one-quarter ($\frac{1}{4}$) inch in diameter will be permitted, and not less than three-quarter ($\frac{3}{4}$) inch thick. One layer shall be placed vertically and the other horizontally. This core shall be covered with tin or galvanized iron on each side. The sheet metal shall be either lock jointed or be composed of one sheet on each side. The sheets shall lap so as to give two (2) thicknesses of metal on all the edges of the door and shall be nailed on the edges with large headed nails not shorter than two (2) inches, and spaced not more than four (4) inches apart. The metal shall also be nailed on both faces of the door at intervals of not over twelve (12) inches in each direction.

Section 517. Except as otherwise provided, fire doors herein required for various locations shall be of the class indicated below, or better.

Class "A" doors shall be used for: Openings in division walls and openings between garages and other occupancies, as required by Section 937.

Class "B" fire doors shall be used where Class "A" doors are not required and where Class "C" or other doors are not permitted; provided

that Class "A" doors may be used wherever Class "B" doors are required.

Nothing in this Code shall be construed to prohibit the installation of passenger elevator doors constructed of wire glass set in cast iron or bronze frames.

Class "C" fire doors may be used where fire doors are required in frame buildings not over two (2) stories high and in ordinary masonry buildings not over one (1) story high, except that they shall not be used on division walls.

Section 518. Fire windows shall be constructed of metal frames and metal sash, glazed with $\frac{1}{4}$ inch wire glass. The metal frames shall not exceed 7 feet by 12 feet in dimensions and no glass shall be larger than seven hundred twenty (720) square inches between supports nor exceed fifty-four (54) inches in greatest dimension.

All chains and hardware shall be wrought iron or steel and all hollow sills shall be filled with concrete. Hollow metal frames and sash shall be made from galvanized sheet iron or steel not lighter than No. 24 gauge, or of copper not lighter than No. 20 gauge, and shall be securely fastened together at all intersections by sufficient rivets to make the frame rigid without depending upon solder.

The grooves for glass in hollow metal sash shall be not less than three-fourths ($\frac{3}{4}$) inch deep while the glass shall be of such size as to enter the groove not less than five-eighths ($\frac{5}{8}$) inch. The groove shall be well filled with putty on both sides of the glass.

Solid metal sash shall have the glass fastened with angle clips and putty.

Section 520. Wherever plastering is required by this Code, it shall comply with that portion of the following provisions applying to the type of plastering called for:

Grounds for wood lath and plaster shall be not less than three-fourths ($\frac{3}{4}$) inch thick and for metal lath not less than five-eighths ($\frac{5}{8}$) inch thick.

Wood lath shall not be less than one-fourth ($\frac{1}{4}$) inch thick nor more than one and one-half ($1\frac{1}{2}$) inches wide.

The key space between the lath shall be not less than one-fourth ($\frac{1}{4}$) inch where gypsum plaster is to be used and not less than three-eighths ($\frac{3}{8}$) inch where lime plaster is to be used. The joints formed at the ends of the lath shall be broken every tenth lath or closer.

Furring or studs to which the wood lath are nailed shall be spaced not farther apart than sixteen (16) inches.

Plasterboard shall not be less than one-fourth ($\frac{1}{4}$) inch thick and shall be composed of a hard plaster core placed between sheets of heavy paper and thoroughly bonded thereto. It shall be nailed at intervals of four (4) inches or less along lines not farther apart than sixteen (16) inches. Nails shall be not less than one and one-eighth ($1\frac{1}{8}$) inches long with heads not less than five-sixteenths ($\frac{5}{16}$) inch in diameter.

Metal lath shall be adequately supported at intervals sufficiently close to prevent sagging and shall not weigh less than two and one-fourth ($2\frac{1}{4}$) pounds per square yard.

The materials and proportions used in the mixing of plaster shall be such as to produce a hard, durable plaster which shall be applied in a workmanlike manner. The thickness from lath or plaster board to the finished surface of the plaster shall in no place be less than three-eighths ($\frac{3}{8}$) inch.

Any required plastering which when completed does not comply with the requirements of this Code shall be removed and properly replaced before the building or portion thereof in which the plastering is required may be occupied.

Whenever any building is ready to lath, the owner or his representative shall notify the office of the Superintendent of Buildings of such fact, giving the number of the building permit and the street number of the building, and it shall be the duty of the Superintendent of Buildings, as soon as possible thereafter, to inspect the said building and ascertain whether or not fire stops, bridging, chimneys, fire places, etc., which will be concealed by the lath and plaster, have been constructed in accordance with the provisions of this Code. No lathing shall be done until the building or portion thereof which is to be lathed shall have been inspected and approved by the Superintendent of Buildings.

Section 521. Except in residences and apartment houses containing not more than two (2) apartments, all furnaces and boilers used for generating heat or power must be enclosed with the construction required hereafter in this section: Provided, however, that enclosures specified in any class of buildings may be used in buildings of a lower classification.

Fireproof buildings shall have masonry enclosures, the walls of which, if constructed of brick, bearing wall tile or unreinforced concrete, shall not be less than six (6) inches thick, and if of partition tile, not less than eight (8) inches thick.

Mill buildings shall have their enclosures constructed with walls of double two by six (2x6) tongued and

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grooved lumber placed vertically breaking joints, provided that if the floor of the furnace or boiler room is laid on the ground, the enclosing walls must be of masonry construction as required above for enclosures in fireproof buildings. The ceiling may be of the same construction as the double planked walls or may be of three (3) inch tongued and grooved lumber having finish floor above, or may be of laminated mill construction. The floor must be of fireproof construction or of mill construction thoroughly protected from moisture and covered with not less than three (3) inches of masonry. All combustible walls and ceilings must be plastered on the inside of the boiler room, using metal lath or plasterboard on the ceiling if it be laminated.

Ordinary masonry buildings over one story high and frame buildings over two stories high shall have their enclosures constructed as required for mill buildings, except that masonry walls are not required and concrete finish floors may be laid on a joist constructed floor after thoroughly protecting it from moisture.

Frame buildings not over two stories in height and ordinary masonry buildings not over one story in height shall have their enclosing walls constructed as required for mill partitions. The ceilings shall be mill construction or be of joist construction sealed on the under side with two by six (2x6) tongued and grooved lumber. Non-fireproof walls and ceilings must be plastered on the inside. Floors must be of masonry or of wood construction thoroughly waterproofed on top and covered with three (3) inches of masonry.

All openings in furnace or boiler enclosures shall be equipped with fire doors or fixed fireproof windows, except that exterior openings need not be fireproof unless they open on to a court or shaft or are required to be fireproofed by other parts of this Code.

Section 522. All rooms used for the smoking of fish or meat shall have fireproof walls with all doors fireproof or incombustible. The roof must be incombustible or fireproof. The grillage, tracks, etc., within a smoke room must be incombustible. A guard must be provided to prevent the fish or meat from falling upon the fire.

Section 523. Every dry room, except lumber dry kilns, in which a temperature of one hundred degrees (100°) Fahr. or more is maintained, shall be enclosed with fireproof or plastered mill construction or shall be enclosed with single two by six (2x6) inch tongued and grooved walls and ceiling covered on the inside with one-fourth ($\frac{1}{4}$) inch asbestos cement board, asbestos or plasterboard and with sheet metal lock jointed or lapped one and one-half ($1\frac{1}{2}$) inches. The doors shall be of equivalent construction with all jambs metal covered or shall be fire doors. The floors shall be covered with concrete, or be of wood not less than two (2) inches thick covered with one-fourth ($\frac{1}{4}$) inch asbestos cement board and sheet metal. Such dry room or enclosure shall have wire netting of not more than one (1) inch mesh, so placed as

to prevent any contact between combustible materials and the steam or heating pipes, stoves or other heaters.

Every lumber dry kiln shall have in each compartment thereof scuttles of a cross-sectional area of not less than four (4) square feet, placed not over thirty (30) feet apart, and constructed so that they may be opened from the outside by firemen.

In order to provide for the escape of gas in case of fire, there shall be a scuttle not less than three (3) feet no (0) inches square in the center of the roof of each compartment of every shingle dry kiln. Where the compartments are over forty (40) feet, no (0) inches in length, there shall be additional scuttles one (1) foot square for the entrance of fire hose, and so located that there will be not more than twenty (20) feet, no (0) inches, between any two scuttles, nor between either end of the kiln and the scuttle nearest it. The covers of said scuttles shall be so constructed that they can be readily opened from without.

Where vaults are required for the containing of combustible refuse or packing material, they shall be constructed as required above for dry rooms, except that plastered surfaces must be covered with metal.

All openings to such vault shall be fireproof openings.

Fire doors required by this section may be Class "C" doors.

Section 527. Except as otherwise provided, all chimneys shall be built of brick, stone, concrete or concrete chimney blocks, laid in lime and cement mortar; shall have all joints entirely filled with mortar; shall have walls not less than four (4) inches thick if lined with flue lining, and not less than six (6) inches thick if unlined.

Unless used exclusively for fireplaces, chimneys having an inside cross-sectional area in excess of one hundred fifty (150) square inches shall have walls not less than eight (8) inches thick. Chimneys having an inside cross-sectional area in excess of six hundred (600) square inches shall have walls not less than twelve (12) inches thick for the first twenty-five (25) feet, and eight (8) inches above.

Section 528. All chimneys having four hundred (400) or more square inches of cross-sectional area shall be lined with fire brick laid in fire clay at least two (2) feet below and six (6) feet above the entrance of any smokepipe.

Section 529. Concrete chimney blocks shall be made of good gravel or clinker concrete with rabbetted horizontal joints; shall have no vertical joints and be not larger than eight (8) by eight (8) inches inside measurement.

Section 530. No chimney flue shall have less than one (1) square inch of cross-sectional area to each one and one-half ($1\frac{1}{2}$) square inches of cross-sectional area of the smokepipes entering it.

Section 531. Unless supported directly on the ground all chimneys in buildings shall be supported on horizontal structural members or on posts not less than four (4) inches in least dimension, which in turn

shall be supported by horizontal structural members of the building, or by a masonry foundation. In no case shall chimneys be constructed on brackets.

Chimneys resting directly on wood shall have at least three (3) courses of solid brickwork at the bottom.

No chimney shall be supported at any place except at its base nor shall it be constructed in any way that would cause the joints to open in case of settlement.

Section 532. All beams, joists, headers, studs or other wood framing shall be kept at least one and one-half (1½) inches clear of chimneys, and when a chimney extends through a floor or ceiling the space between the wood framing and the chimney shall be filled solid with mortar or other incombustible material resting on a course of brick set out one (1) inch to hold it in place, or the space shall be covered with metal to prevent the passage of fire through the floor or ceiling; provided, however, that where chimneys are constructed two (2) inches thicker than called for by this Code the space between the chimney and wood framing need not exceed one-half (½) inch.

Section 533. Thimbles for smoke pipes from heating stoves and kitchen ranges shall be not less than six (6) inches from any plastered wood partition or wall, nor less than twelve (12) inches from any plastered wood ceiling, nor less than eighteen (18) inches from any unplastered wood wall, partition or ceiling.

The chimney shall be corbelled out to the face of the sheathing or lathing for a distance of at least four (4) inches from the thimble; provided, however, that the masonry may be left one-half (½) inch back from the face of the studding or furring if metal lath instead of wood lath is placed in front of the corbel, and if the metal lath is kept one and one-half (1½) inches clear of the thimble. Where the chimney is constructed of brick, the top and bottom courses of the corbel shall be composed entirely of headers.

Section 534. In racking over chimneys, no course of brick shall be offset more than one-half (½) inch, and no racking shall be made so that the unsupported overhang shall be more than one-third (1/3) of the base of the chimney. No nails shall be driven into any chimney.

No masonry chimney, or part thereof, shall be constructed in an inclined or horizontal position. This shall not be considered, however, to prohibit the construction of masonry breechings.

Section 535. Except on fireproof buildings, chimneys shall be built to a height of not less than two (2) feet above the ridge of the roof if they penetrate same, or not less than three (3) feet above a flat or pitch roof, measuring from the high side of the roof. Furthermore, chimneys must be constructed as high as any part of the building within a twelve (12) foot horizontal radius of the chimney, and two (2) feet higher than any part of the building within a five (5) foot horizontal radius of the chimney.

Chimneys extending over five (5)

times their least dimension above the roof must be designed to withstand a wind pressure of twenty-five (25) pounds per square foot.

Sheet metal extensions to chimneys of the required height may be installed if built of approved gauge metal substantially guyed and designed to withstand a wind pressure of twenty-five (25) pounds per square foot.

Section 538. When buildings which are constructed above the water on piles or on floats, are swayed by tides, waves or vessels to such an extent that the movement would injure masonry chimneys, such chimneys shall not be installed. Metal chimneys commonly known as smokestacks may be used instead of masonry if constructed as hereinafter specified. Metal chimneys may also be used in tents, or in any one-story buildings in the Fourth Building District, if the buildings contain no attic or finish on the under side of the rafters, and has a floor area of not to exceed five hundred (500) square feet.

Metal chimneys installed in buildings which are permitted by this section to contain them shall not be larger than seven (7) inches inside diameter, unless the metal chimneys and the buildings containing them conform to the hereinafter requirements pertaining to metal chimneys of larger diameter. Metal chimneys permitted by this section and not extending through any attic space or story shall be constructed from a distance of eighteen (18) inches below the rafters to a height of at least eighteen (18) inches above the roof of two (2) galvanized iron pipes not thinner than No. 24 gauge with a two (2) inch air space between. The air space shall be vented at top and bottom to provide for the passage of air or shall be filled with corrugated asbestos. The opening for ventilation shall be equal to at least half the cross-sectional area between the pipes. The openings in the top shall be protected from rains. The outer pipe shall be kept at least four (4) inches from any wood or other combustible material. The pipes shall be made with grooved or riveted seams and the joints shall be riveted together.

Metal chimneys permitted by this section and extending through an attic or story shall be constructed as above, except that there shall be not less than four (4) inches between the two pipes which must extend from eighteen (18) inches below the lowest ceiling through which they pass to not less than eighteen (18) inches above the roof. However, the outer pipe may be within two (2) inches of wood construction, but not nearer.

Section 539. Metal smokestacks of any size may be used from boilers or furnaces which are so located that the stack goes through no partitions, floors or attic, but only through the roof. In such cases the stack shall be kept clear of all combustible material by a distance equal to the diameter of the stack but in no case less than twelve (12) inches. However, the distance need not exceed thirty (30) inches. Provided, further, that metal smokestacks may be used in any building if the stack is enclosed with fireproof walls not less than six (6)

inches thick which shall be kept at least six (6) inches clear of the metal stack. They may also be used in connection with a building if located outside of the building and supported directly on masonry. The metal stack must, however, be kept as far from combustible material as required by this section. However, no metal smoke pipe may pass through any outside wall or window, but the smoke may be carried outside of the building by means of a masonry breeching.

Section 540. Cupolas as ordinarily constructed of steel with fire brick lining and used for melting of iron or other metal, must be kept eighteen (18) inches from any woodwork.

The chimneys of cupolas must extend ten (10) feet above any combustible roof within fifty (50) feet.

Other devices used for heating or treating of metals must be kept a sufficient distance from combustible materials to eliminate danger of fire.

Section 542. All chimneys in party walls shall be separated by at least four (4) inches of masonry throughout the entire length, and any such chimney shall have openings for smoke pipes upon one side only.

Section 543. No metal smoke pipe shall pass through a floor, attic or concealed space. Where a smoke pipe passes through a clothes closet or other space where combustible material may come in contact with it, the pipe passing through such space must be a double galvanized iron pipe with riveted or locked joints and having an inch thickness of corrugated asbestos between the pipes. The double pipe shall not be more than eight (8) feet long and shall extend through the wall of the chimney.

Section 544: In all cases where smoke pipes pass through stud or wood partitions of any kind, whether the same be plastered or not, they shall be surrounded by masonry not less than four (4) inches in thickness, or by solid plaster four (4) inches thick, or by a double metal collar with air chambers not less than three (3) inches and perforated for the passage of air, and when such partition is of uncovered wood, it shall be further protected by a sheet of metal on each side five (5) times the diameter of the pipe.

Section 545. Except as provided for heating stoves and kitchen ranges, no smoke pipe shall be less than twelve (12) inches from any plastered wood wall, partition or ceiling which is parallel to the smoke pipe, nor shall it be closer to said surface than a distance equal to the diameter of the pipe. If the wall, partition or

ceiling is of unplastered wood, the pipe shall not be closer than twenty-four (24) inches nor a distance of one and one-half ($1\frac{1}{2}$) times the diameter of the pipe. If a sheet of metal not lighter than No. 20 gauge is nailed to an unplastered wood partition or ceiling in such a way that a two (2) inch air space between the sheet metal and the wood will be provided at all points within a distance of two (2) feet from the smoke pipe, but in no case less than a distance equal to one and one-half ($1\frac{1}{2}$) times its diameter, the protection shall be considered as equivalent to lath and plaster. The sheet metal shall be attached in such a way that the air will circulate freely in the two (2) inch space behind it. Where sheet metal is attached to plastered wood walls, partitions or ceilings in accordance with the above requirements, the distance between the smoke pipe and the plastered wood surface may be decreased twenty-five (25) per cent.

Section 546. Except as otherwise herein provided, all ducts used for the conveying of hot air or for ventilating purposes, shall be constructed as required for fireproof or incombustible partitions, or shall be of sheet metal with lock jointed or riveted seams and joints. Where such ducts extend from story to story they shall be placed in partitions or enclosed by partitions. The combustible material of such partitions and floors through which the ducts pass shall be kept at least three (3) inches from the ducts or be protected by not less than three-eighths ($\frac{3}{8}$) inch of plaster or one-quarter ($\frac{1}{4}$) inch of asbestos or plaster board.

The above provisions of this section, except as to the materials of which the ducts shall be constructed, shall not apply to residences.

Openings between any ducts and the floor construction surrounding them shall be filled with mortar or other incombustible material to prevent the passage of fire.

Section 547. When only one register is connected with the furnace there shall be no dampers or other devices in the duct for stopping the circulation of hot air.

Where hot air furnaces are used for heating, no grillage or register constructed of wood shall be used at the opening of hot air ducts unless the register is more than ten (10) feet from the furnace and no combustible material shall be within three (3) inches of that part of the duct which is within ten (10) feet of the furnace, unless the combustible material is protected as required when

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sheet metal ducts are enclosed in partitions.

Section 548. Every fireplace shall have a hearth extending at least eighteen (18) inches from the face of the mantel and at least fifteen (15) inches on either side of the fireplace opening. The hearth shall rest upon the masonry of the fireplace on at least one side but may be partially supported by the floor construction of the building. The hearth shall be not less than eight (8) inches thick where it joins the fireplace and not less than four (4) inches thick at the side farthest from the fireplace. The wooden forms under the hearth must be removed before the fireplace is used.

The masonry behind the jambs shall be corbelled out to the face of the mantel to support same. The corbel shall not project more than two (2) inches for each three (3) inches of height. The masonry above the fireplace opening and throat shall be supported on steel angles or other metal supports of adequate strength and having at least a four (4) inch bearing on each end.

If the face of the fireplace is so constructed as to provide for a mantel which is not bonded to the fireplace with headers, then a masonry tongue at least two by two (2x2) inches extending along the entire front of the masonry above the fireplace opening shall be left for the purpose of preventing the passage of fire and smoke between the mantel and the rough face of the fireplace, also there shall be provided galvanized corrugated metal ties for anchoring the brick mantel. They shall be placed not farther apart than every third course.

The back of the fireplace shall be not less than seven (7) inches thick if on the outside of a building, and not less than eleven (11) inches thick if within a building.

Section 549. Brick set ranges, candy kettles or similar equipment in which heat is generated, shall not be set on any combustible floor, but must be kept at least six (6) inches clear thereof and open on two (2) sides to allow for circulation of air, and the space thereunder shall be covered with two (2) inches of masonry. They shall also be kept at least twelve (12) inches from combustible material on any side thereof. Brick set ranges or similar devices where coals of fire may fall upon the floor, shall have the combustible floor in front thereof covered with sheet metal, masonry or other incombustible material for a distance of three (3) feet out from the range.

Section 550. All cooking devices

such as stoves, ranges, gas or electric plates which are used to cook for thirty (30) or more persons during a period of twenty-four (24) hours and which are likely to produce grease fumes, shall be provided with a metal hood extending over the entire surface used for cooking.

The hood shall be constructed of sheet metal not lighter than No. 22 gauge fastened to a rigid metal frame and shall have its sides extend to within seven (7) feet or less of the floor. The top and sides shall be kept at least twelve (12) inches from any plastered wood work and eighteen (18) inches from any unplastered wood work. The hood shall be connected by a ventilating duct to a masonry chimney or to a metal duct outside the building provided no smoke flue shall enter either. The metal ventilating duct shall be constructed of galvanized sheet metal not lighter than No. 22 gauge if its cross-sectional area does not exceed 260 square inches, and of galvanized sheet metal not lighter than No. 20 gauge if the cross-sectional area exceeds 260 square inches. They shall have grooved seams or be lapped one and one-half (1½) inches and riveted with two (2) rows of rivets staggered two (2) inches or less apart.

The different sections of the duct shall be fastened together with rivets spaced not farther apart than two (2) inches or they shall be riveted to one by one by one and one-eighth (1x1x1½) inch angles with rivets not farther apart than two (2) inches and the angles on the connecting ends of sections shall be fastened together with one-fourth (¼) inch bolts not farther apart than two (2) inches. The duct shall be kept at least twelve (12) inches from any plastered wood work and at least eighteen (18) inches from any unplastered wood work. No such ducts shall pass through any floor or ceiling nor through any wall or partition separating two (2) tenants nor through any frame exterior wall. No such metal duct shall be carried up the outside of any frame wall but may be carried through and up the outside of a masonry wall provided they shall be kept at least twelve (12) feet above the alley grade. When supported on the exterior walls of a masonry building, ducts shall be fastened to the wall every ten (10) feet or closer, by metal bands not lighter than one-quarter by one and one-half (¼x1½) inch, which in turn shall be fastened to the masonry wall with expansion bolts not smaller than one-half by four (½x4) inches, and shields. All such ducts shall extend to a height of three (3) feet above the parapet wall of any building within twelve (12) feet; pro-

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vided, however, that they need not extend more than three (3) feet above the parapet of the wall to which it is fastened, if the occupancy of the construction of the buildings within twelve (12) feet of the duct is such that the fumes in no way can become a nuisance to the occupants of the adjacent buildings.

Ventilating ducts from cooking devices shall have a hood over the top

so as to prevent rain falling into the pipe.

All such ducts shall be provided with tightly fitting doors located at each angle in the pipe and at other necessary locations in order that they may be thoroughly cleaned, or they shall be constructed in removable sections as mentioned above in order that they may be removed and cleaned. The above requirements shall also apply to vent ducts from coffee roasters.

PART 6 MEANS OF EGRESS

Section 601. All buildings shall be provided with good safe and sufficient means of egress in case of fire or panic. Such means of egress from floors not at grade shall be by means of open or enclosed service stairways, fireproof tower stairways, fire escapes, fire escape ladders, through adjoining buildings, or other equivalent means approved by the Superintendent of Buildings. Besides the means of egress hereinafter provided, there may be required such additional means of egress as are necessary to provide good, safe and sufficient means of escape. There shall be at least one means of egress for each division between division walls.

All required means of egress and all required or necessary approaches thereto shall be kept free from obstruction and all such required or necessary approaches shall be at least equal in width to the required width of the means of egress which they serve.

The following requirements of this Part relating to stairs do not apply to dwellings and buildings appurtenant thereto except as specifically provided.

Section 602. Every building two stories in height from the lowest street or alley grade shall be provided with at least one stairway.

Every building three stories high from the lowest street or alley grade shall be provided with at least one stairway and one public fire escape ladder.

Every building more than three stories in height from the lowest street or alley grade, hereafter erected or altered to the extent of more than 50 per cent of its original cost, shall be provided with at least one stairway and at least one fire escape constructed as hereinafter provided. In factories, workshops, stores, places of habitation, refuge and detention over two stories high, additional fire escape stairways, fire escape ladders, fireproof tower stairways, or open service stairways shall be provided sufficient in number and so located that from every room or connected suite of rooms there shall be at least two of the above mentioned means of egress available without passing any open stairway, elevator pit, or open light well. One of such means of egress available from any room or connected suite of rooms may be a private fire escape available only for the occupants of such room or connected suite of rooms.

The means of egress from towers shall be good, safe and sufficient and the number, location, construction and enclosures of such means of egress shall comply with such rea-

sonable regulations as the Superintendent of Buildings may prescribe.

Section 603. Every fireproof building used as a hotel or office building shall have one flight of stairs for each 8,000 square feet or fraction thereof of second floor area. Every fireproof building used as a store, warehouse, factory or workshop shall have one flight of stairs for each 10,000 square feet of the second floor area or fraction thereof.

Section 604. Every non-fireproof building used as a hotel, office building, store, warehouse, factory or workshop shall have one flight of stairs for the first 3,500 square feet of second floor area and one additional flight of stairs for any added area within the first 10,000 square feet of second floor area, and an additional flight for each additional 10,000 square feet of the second floor area or fraction thereof.

Provided, however, that two-story warehouses constructed on the waterfront and used for the storage and shipping of freight, merchandise and commodities in which the number of men employed on the second floor shall not exceed two persons for each 1,000 square feet of floor area, and which project wholly or in part over the water shall have not less than one flight of stairs for every 14,400 square feet or fraction thereof of the second floor area. In no case shall such building if exceeding 3,500 square feet in second floor area have less than two stairways, and there shall not be less than one stairway in each fire division of each building between fire walls; and stairways shall be enclosed as hereinafter provided for buildings over two stories in height and shall terminate at an exit to a street, alley or yard; provided that in such building of smaller area, the means of egress shall be as approved by the Superintendent of Buildings.

Section 605. In fireproof office buildings when the number of stairs required is but 2, then an open service stairway may be omitted if the other stairway is fireproof enclosed to a street, alley or yard and if the building is provided with 2 fire escapes located as approved by the Superintendent of Buildings.

In fireproof office buildings when the number of stairs required is 3 or more in non-fireproof hotels and office buildings when the number required is 4 or more, then one open service stairway may be omitted if another required service stairway is fireproof enclosed to a street, alley or yard and the building provided

with not less than 2 fire escapes in any case.

In all buildings required to have 2 or more open or enclosed stairways, one may be replaced by one fireproof tower stairway as herein defined. In all buildings having 2 or more open service stairways or 2 or more stairways enclosed from the top to the second floor, then one of such stairways may have its width and dimensions of its risers and treads as required of enclosed tower stairways. In such buildings one tower stairway or one fireproof enclosed stairway may replace 2 fire escapes, if the means of egress are then good, safe and sufficient. A tower stairway may be replaced by a fireproof enclosed service stairway.

In any building a required fire escape may be omitted if an additional stairway is provided beyond the required number. In any building 2 required fire escapes may be omitted if an enclosed stairway is provided beyond the required number, satisfactory to the Superintendent of Buildings.

In any non-fireproof building used as a warehouse or office building having a second floor area of 6,000 square feet or less which is required to have 2 stairways, then one of the required stairways may be omitted if the building is provided with 2 fire escapes.

Where 2 areas of the same building adjoin and are separated by fireproof dividing walls and have 2 stairways each, they have a stairway in common, provided such stairway is not less than $1\frac{1}{2}$ times the required width of any required stairway in such adjoining areas; and further provided that such common stairway is enclosed with fireproof partitions having approved fireproof openings. When such common stairway is used then one stairway from each of the adjoining areas may be omitted, but in no case shall there be less than one other stairway in each of such adjoining areas.

When adjoining buildings or buildings on opposite sides of an alley or other open space, and of the same class, and used by the same person, are connected by a fireproof bridge or passageway with fireproof doors at each end, or by a fireproof door on each floor; and if such bridge or passageway or fireproof door is located as far as practicable from the stairway in both of said buildings, then said bridge or passageway or fireproof door may be considered equivalent to a stairway for one of the buildings.

All fire escapes except one may be omitted provided that one of every two stairways required in a building constructed throughout of iron, steel or masonry, or a combination of these materials, and with risers, treads and landings as required for tower stairways, but is built on the outside of the building and has an entrance on every floor from a masonry or iron or steel balcony or loggia free and open to the outside air, and where all stair halls, elevator shafts and other openings through the floor from the ground entrance to the roof in the interior of the building are enclosed in fireproof walls with approved self-closing, fireproof doors.

Section 606. Every fireproof building used as a place of habitation, refuge or detention except hotels shall have not less than one flight of stairs at least the minimum width hereinafter provided, for the first 50 rooms above the ground floor, exclusive of toilet rooms and kitchenettes, and 2 such flights for the first 140 such rooms and one additional flight for each additional 140 such rooms or major fraction thereof.

Every non-fireproof building used for such purposes except hotels shall have at least one flight of stairs of the minimum width hereinafter provided, for any minor fraction of the first 80 rooms above the ground floor, exclusive of toilet rooms and kitchenettes, and 2 such flights for any major fraction thereof, and an additional flight for each additional 80 such rooms or major fraction thereof.

If the fractional part of the said 140 rooms or the 80 additional rooms does not exceed half these numbers respectively, the additional flight of stairs may be omitted if the sum of the width of all stairways otherwise required and halls leading thereto be increased by $\frac{1}{2}$ the width of such additional flight.

Each room or suite of rooms in any place of habitation, refuge or detention shall have available for egress not less than two stairways or one stairway and one fire escape without passing any open stair, well, elevator shaft or light shaft. When the entrance to such room or suite of rooms is within 20'0" of a fireproof enclosed stairway or is on a stub-hall and not more than 20'0" from a main hall having the required means of egress, then such room or suite of rooms may have but one means of egress, provided not more than 3 such entrances shall be placed on such stub-hall.

Section 607. Every non-fireproof dwelling exceeding 2 stories in height shall have 2 flights of stairs if there be 10 and not more than 20 rooms above the first story and an additional flight if there be more than 20 such rooms. A fireproof dwelling may have one less flight of stairs than is required for a non-fireproof dwelling.

Section 608. Every cellar or basement used for the storage of combustible materials, or containing boilers or machinery in operation or used for any purpose producing an equivalent fire hazard, shall have 2 means of egress, one of which must be direct to a street, alley or yard and may consist of a stationary ladder. Every cellar or basement shall have a stairway at least 3'0" wide for the first 7,500 square feet or fraction thereof and one additional stairway for each additional 7,500 square feet or major fraction thereof. At least one stairway shall open direct onto a street, alley or yard.

Section 609. Every building 2 or more stories high shall have at least one of the required stairways extend from the ground floor to the top floor.

Any fireproof office building, hotel, store, warehouse, factory or workshop in which more than 2 stairways are required may have $\frac{1}{2}$ or minor fraction of the required number of the stairways, which extend from the top downward, stop at the second

floor, provided other satisfactory means of egress are supplied from the second floor.

Stairways shall be continuous from the top of the stairway to the bottom, except that in $\frac{1}{2}$ or the minor fraction of the required number of stairs extending to the ground floor, offsets of not more than 4'0" may be allowed at the second floor; and at the top floor in stairways extending to the roof, provided such offsets are enclosed by a direct passageway.

Section 615. Stairways in fireproof buildings shall be of fireproof materials, except hand rails, window stools and treads to balcony stairs elsewhere provided. Treads and platforms covered with natural or artificial stone shall have such stone, when less than 2 inches thick, supported throughout by metal sufficiently strong to carry temporarily the stone and the probable live load in case of breakage by fire or otherwise.

Stairway anchors and supports shall be of such strength as to sustain with safety the loads of the stairways which they carry.

Section 616. In all stairways there shall be at least 7'0" of clear head room measured perpendicularly from the nosings.

The width of stairs shall be taken as the distance in the clear between walls, hand rails, newel posts or other obstructions. In all buildings, stairs and public halls used as means of egress shall be at least 3'6" wide and every hall shall be at least 6 inches wider than the widest door swinging into it. In all office buildings and hotels over 10 stories in height, every required stairway in the lower 10 stories shall be increased one inch in width throughout for each additional story. In all stores, workshops and factories over 8 stories in height every stairway in the lower 8 stories shall be increased one inch in width throughout for each additional story. In all places of habitation, refuge or detention over 6 stories in height every stairway in the lower 6 stories shall be increased one inch in width throughout for each additional story.

When 2 or more stairways are required, not more than $\frac{1}{2}$ the number of such stairways may be made 6 inches less than the required width, provided the remaining stairways are made 6 inches more than the required width.

Stairs in hospitals, asylums, and buildings for housing the aged, the sick and infirm, imbeciles, or children shall be 25 per cent. wider than herein required.

Section 617. The height of a riser plus the width of a tread shall not be less than 16 inches nor more than 23 inches; provided that the width of treads in stairs serving at times a hundred or more persons shall not be less than 10 inches.

The height of a riser is the distance between the tops of two consecutive treads. The width of a tread is the distance between the faces of two consecutive risers. The dimensions of treads and risers shall be maintained uniform in each run of stairs. The height of risers shall in no case exceed the width of tread,

except as provided for fireproof tower stairs.

Winders when used shall meet the approval of the Superintendent of Buildings and comply with the following requirements: The width of risers and treads in winders shall be taken at a point $1\frac{1}{3}$ " from their narrow ends. The narrow ends of treads shall be not less than 5 inches in width and the wide ends not more than 30 inches in width. The inside stair string of winders shall be built on a radius of not less than $7\frac{1}{2}$ inches. Wide, easy monumental stairs having curved risers and treads may be constructed on a large radius if equivalent to or better than straight stairs and if approved by the Superintendent of Buildings.

Section 618. There shall be not less than 2 risers nor more than 20 risers between consecutive landings in buildings. Every landing not forming a turn in the stairway shall be at least 3'0". Every landing forming a right angle turn in a stairway shall be as deep as the stairs are wide. Every landing where stairs turn upon themselves shall be at least equal to both flights in width and equal to one flight in depth. The depth of landings at the top and bottom of enclosed stairs shall be $\frac{1}{4}$ greater than the width of the stairs and $\frac{1}{4}$ greater than the width of any door opening onto the same.

Doors shall not swing over landings in a manner to reduce any dimensions of such landings in places of public assembly and shall not swing over landings in any other building more than $\frac{3}{4}$ of the required width of the adjoining stairs. No doors shall swing over stairs.

Section 619. All stairways of more than three risers shall have substantial balusters and hand rails around all well holes and along all sides of flights and landings not adjoining walls.

All stairways in or leading to places of public assembly, public buildings, places of refuge and detention and all stairways over 4'0" wide in all other buildings shall have hand rails on both sides, except that on landings of greater length than the width of the adjoining stairs in buildings other than places of public assembly, a wall rail will not be required.

Section 620. Every fireproof tower stairway used as a means of egress shall be constructed next to an exterior wall and not more than 30'0" from a street or alley line, and shall open directly upon a street or alley or into a fireproof passageway leading directly to such street or alley, which passageway shall not be less than 3'0" in width and 7'0" in height in the clear. There shall be no openings through the walls of such passageway except fireproof openings approved by the Superintendent of Buildings.

Such stairways shall be enclosed throughout their entire height by masonry walls not less than 4 inches thick, or by other approved fireproof partitions, and all windows of such enclosures shall be fireproof.

There shall be at each floor a fireproof door not less than 2'6" wide and 6'0" high, opening from a public hall or passageway into the stairway. The lower door of such stairway shall open outward upon the

street or into the fireproof passageway above mentioned.

All doors in connection with fireproof tower stairways shall be kept closed and shall be provided with approved self-closing devices, which shall at all times be kept in good repair. No such door leading into a fireproof stairway shall have attached thereto or connected therewith any fastening device that cannot be easily opened from the inside of the building into such stairway without a key. No lower door leading out of such stairway shall have attached thereto or connected therewith any fastening device that cannot be easily opened from the inside without a key.

Every such stairway shall lead from the street or alley floor to the roof of the building, and shall be not less than 2'6" wide in the clear from the roof to the sixth floor from the top and not less than 3'0" wide in the clear from the sixth floor from the top to the street or alley floor. The landings shall be not less in width than the width of the stairs at each floor, and of sufficient width to prevent the door when open from obstructing the stairs or landing. Every fireproof tower stairway shall have a run of not less than 7 inches and a rise of not more than 9 inches, and shall be provided with a continuous hand rail on both sides, except at doorways. Such hand rails shall be on steps. Said stairs and landings shall be constructed throughout of incombustible materials.

Section 625. Every building over three stories high, except fireproof office buildings, required to have but 2 stairways, shall have at least one stairway enclosed from the second floor to the top of the stairway at the top floor or roof; and shall have such additional stairway enclosures as are hereinafter required.

Section 626. Stairway enclosures in fireproof buildings shall be fireproof and in non-fireproof buildings shall be fireproof or non-fireproof as hereinafter required.

Stairways adjoining elevator shafts shall be separated from such shafts by fireproof partitions.

Stairways in all fireproof buildings and in non-fireproof buildings over 3 stories in height, used as stores, warehouses, factories or workshops shall be enclosed with fireproof walls or partitions. In non-fireproof buildings 3 stories or less in height used for such purposes, stairway enclosures may be built of 2 thicknesses of vertically placed 1 $\frac{3}{8}$ -inch matched lumber, with 30-lb. asbestos paper between, and with broken joints; or may be built as required of partitions in mill buildings.

Section 627. Every stairway leading to an upper story used as a place of public assembly, or place of habitation, refuge or detention, and passing through a first story used for a different purpose shall be enclosed from the top of the stairway to a street, alley or yard. Such enclosures shall be fireproof from the bottom to the top of the second floor level if in buildings more than 3 stories high. Such enclosures in non-fireproof buildings not more than 3 stories may be built of 2 thicknesses

of vertically placed 1 $\frac{3}{8}$ -inch lumber, with 30-lb. asbestos paper between, and with broken joints, as required of partitions in mill buildings.

Section 628. In places of public assembly, and places of habitation, refuge or detention there shall be no doors opening from the first story stair enclosure into a store, saloon or other room of a different class of occupancy than that of the floors above, excepting offices used in connection with the upper floors and enclosed as provided for stair enclosures, and not connected with the remainder of the first story. Provided that in first story entrance halls containing stairs in fireproof hotels there may be approved metal or metal covered self-closing doors if glazed with wire glass and set in metal frames.

Section 629. Stairways from basements or cellars leading direct to a street, alley or yard shall not be required to be enclosed. Stairways to basements or cellars in school buildings or buildings containing places of public assembly or to any basement used for the storage or sale of combustible goods, or containing a boiler in operation, or used for any purpose producing an equivalent fire hazard, shall be enclosed with fireproof walls or partitions extending to the top of the ground floor; provided that in any division of a fireproof store building having fire walls as required for buildings other than stores, one open stairway from the ground floor to basement may be provided in addition to the required stairways, subject to approval by the Superintendent of Buildings.

There shall be no stairway leading to a basement from any required fireproof stairway enclosure in the ground story unless approved self-closing fireproof doors separate the ground story stairway enclosure from the basement stairway enclosure. There shall be no stairway to a basement under any flight of stairs in a building containing a place of public assembly unless said basement stairway is separately enclosed with a masonry wall or other fireproof partition with openings therefrom provided with approved, self-closing fireproof doors.

Section 630. In buildings over 3 stories in height, the required stairway enclosures shall include stair halls connecting successive runs of stairs. At the ground floor not less than one such enclosure and not less than half the required number of enclosures shall terminate at an exit or exits to a street, alley or yard; provided that when the required number is a fraction the number required so to terminate shall be the nearest lower number. Such enclosures leading to exits shall be constructed as required of the adjoining stair enclosures, except that in fireproof office buildings the main hall immediately surrounding the stairs and the elevators may have the sash and doors of such main hall of hard wood glazed with wire glass, or with plate glass when the class of occupancy of the adjoining store or shop window is such as to minimize the fire hazard to a degree approved by the Superintendent of Buildings.

Section 631. All interior doors in required stair enclosures shall be

hung to remain closed at all times, and may be held open if provided with approved devices which shall insure automatic closing at a temperature of 165° Fahrenheit. Such doors shall be fireproof in fireproof enclosures, and in non-fireproof enclosures shall be of a construction equivalent to the enclosure.

Doors to enclosures shall not be fastened except in such manner that they can be readily opened by any person seeking egress without the use of a key.

Section 632. All interior sash in required stairway enclosures except in frame buildings shall be of metal frames fixed in position. The metal shall be riveted or clinched and in no case dependent upon solder. Sash in all required stair enclosures shall be glazed with wire glass in lights not exceeding 6 square feet in area each; provided that glass in exit enclosures is not limited as to size.

Section 633. Exit doors from the bottom of stairways shall, either single or in the aggregate, be at least equal in width to the stairs they serve; and shall, when serving as exits from places of public assembly, swing outward.

Section 634. Entrance stair halls shall be at least as wide as the stairs or the aggregate width of same if more than one flight leads from the same entrance hall. All entrance halls leading to stairways shall be as short as practicable from such stairways to a public street, alley or yard.

Section 635. Every public hall shall be lighted in each story except the ground story by at least one window, having a glass area of at least 15 square feet, opening directly on a street, alley, yard or court, and so placed as properly to light the hall; or shall be lighted by equivalent skylights or by equivalent borrowed light through glass in walls or doors of adjoining rooms or the ceiling of such hall, and such hall shall have an adequate artificial light for night service while the building is occupied. Any part of a public hall which is shut off from any part by a door or doors shall be deemed a separate public hall within the meaning of this section.

Section 636. Shafts, chutes and other openings through floors, except stair wells and elevator shafts, the enclosures of which are elsewhere herein provided for, shall, in fireproof buildings, be enclosed throughout with fireproof construction. In mill buildings and in ordinary masonry buildings over three (3) stories high, such floor openings shall be enclosed by mill partitions, the solid wood portion of which shall be not less than four (4) inches thick. In ordinary masonry buildings three (3) stories or less in height and in frame buildings, the openings shall be enclosed in mill constructed partitions or in single two-inch by six-inch (2 in. by 6 in.) tongued and grooved lumber. All wood enclosure construction shall be continuous from bottom to top; the supporting of the enclosure on the top of wood floors in each story will not be permitted. The inside of all such wood enclosures shall be either lathed and plastered or protected by two (2) thicknesses of plaster board or by plaster

board covered with sheet metal either lock jointed or lapped at least one and one-half (1½) inches.

In buildings not over two (2) stories high, the enclosure need not extend above the ceiling of the first story. In fireproof and mill buildings and in ordinary masonry buildings over three (3) stories high, all openings in such enclosures shall be equipped with Class "A" or "B" fire doors. In ordinary masonry buildings, three (3) stories or less in height, and in frame buildings the openings in such enclosures shall be equipped with Class "A," "B" or "C" fire doors.

Section 640. All fire escapes shall be kept clear of all obstruction whatsoever. Every public fire escape ladder or fire escape shall open directly from a hall or passageway to the outer wall of the building. A door or window shall open onto each fire escape in the building. In buildings not over 6 stories high, used for office or business purposes in which no one sleeps except the janitor and his family, such fire escape ladder or fire escape may be located in such a manner and position as to make the same easily and readily accessible through some passage or open room leading thereto from the main hallways. The door of such room shall have no lock or bolt or other device whereby the same can be fastened; or such door may have a fastening device provided the door contains a full-sized glass panel extending to within 2'6" of the floor and provided such fastening device can be readily opened from the outside after the glass is broken.

Section 641. No door or window leading to a fire escape shall have attached thereto or connected therewith any bolt, lock, catch or other fastening device that cannot be easily opened from the inside without a key, and no door or window leading to a fire escape shall be so constructed that when open it can obstruct any part of the escape or balcony. Every door opening onto a fire escape shall be glazed so that the fire escape can be seen from the inside.

No window or door leading to a fire escape shall have a sill more than 24 inches above the floor or an opening less than 30 inches high and 24 inches wide in the clear.

In every case where a fire escape passes a window in an elevator shaft or other shaft, such window shall consist of a metal frame and sash and wire glass.

Section 642. All fire escape ladders and stairway fire escapes shall be constructed entirely of wrought iron and steel.

All exterior fire escapes, including balconies, hand rails and grille work, shall at all times be kept painted with an effective paint to prevent rusting.

Section 643. Every fire escape ladder shall have side rails ¾ inch by 1½ inch placed not less than 14 inches apart, and rounds ⅝ inch in diameter, placed 14 inches apart and passing through the side rails and well headed.

The ladder shall extend from a point 9'0" above the ground to a point over and 2'0" above the fire wall and shall be parallel with and not less than 6" from the wall of the building.

Where the first balcony is more than 12'0" from the ground and is so situated that a fixed ladder would interfere with doors and windows below, the ladder below said balcony may be a hinged or other suitable form of extension.

Section 644. A balcony not less than 2'6" wide and extending the full width of the window or door and width of the ladder space, shall be constructed on each floor at each ladder, with floor strong enough to carry a load of 100 pounds to the square foot. Such floor, in case the opening from the building is a doorway, shall be on the level with the sill of the door, and in case the opening is a window shall be 1'0" below the window sill. Ladder openings in floors of balconies shall not be less than 20" by 24".

Section 645. The floor rail of every balcony shall be of $\frac{5}{8}$ inch by 2 inch wrought iron or its equivalent, and shall be supported by braces $\frac{1}{2}$ inch by 2 inches. The hand rail of balcony shall be made of iron or steel not less than $\frac{1}{2}$ inch by 1 $\frac{1}{2}$ together and to the wall. Such hand rail shall be not less than 3'0" above the floor of the balcony, and braced ever 5'0" with braces extending not less than 4" outside the uprights. The space from the handrail to the floor shall be filled with grille work or additional rails and uprights.

***Section 646.** All ladders and balconies, including brackets and hand rails, shall be securely fastened to masonry buildings by means of bolts or rods at least $\frac{5}{8}$ inch in diameter running through the entire thickness of the wall, and fastened on the inside with nuts or heads over 4-inch washers. On frame buildings such ladders and balconies shall be fastened to studs by means of lag bolts or wood screws at least $\frac{1}{2}$ inch in diameter and 4 inches long, and shall be of sufficient strength to sustain a live load of 100 pounds to the square foot.

Section 647. Every fire escape shall lead from within 9 feet of the ground to the top floor, and shall have a fire escape ladder from the top floor to 2 feet above and over the fire wall; provided that where a fire escape is over an alley the lower balcony shall be placed not less than 12 feet above the ground and a fire escape ladder shall extend from 5 feet above the lower balcony to within 9 feet of the ground.

Section 648. Such fire escapes shall be no less than 2 feet 0 inches wide in the clear, and shall be provided with balconies 4 feet 2 inches wide at each floor level. Such balconies shall be not more than 12 feet no inches apart perpendicularly when practicable and shall be placed and constructed as required for ladder balconies except that the bolts securing the brackets to the wall shall be at least $\frac{3}{4}$ inch in diameter, and the entire outer side of the fire escape and balconies from the top to the bottom shall be protected with wire netting of 3-16 inch wire, or strong grille work having a mesh of not greater than 6 inches, or by sheet or plate iron or steel, built 4 feet 0 inches above the balcony floor and 4 feet 0 inches perpendicularly above

the outer edge of the steps of the stairs, and every such stairway shall also have a strong hand rail on the inner side 3 feet 0 inches perpendicularly above the center of the steps.

Section 649. Treads of fire escapes shall be not less than 6 $\frac{1}{2}$ inches wide and risers shall be not more than 12 inches high. Stringers for stairs shall be of 6-inch steel channels weighing not less than 8 pounds per foot, or steel plates 6 inches by $\frac{1}{4}$ inch each, stiffened by a 2 $\frac{1}{2}$ x2 $\frac{1}{2}$ x $\frac{1}{4}$ -inch steel angle, riveted to stringer with not less than $\frac{1}{2}$ -inch rivets, spaced not more than 6 inches from center to center. The stringers shall be riveted or bolted to the framing of the platform.

Treads shall be formed of five $\frac{1}{2}$ -inch iron bars, or of diapered steel plates securely fastened to stringers with two bolts or rivets at each end of treads.

Section 650. Fire escape stairways shall be securely fastened to the balconies and each shall be of sufficient strength to sustain safely a live load of 100 pounds to the square foot.

Section 651. The owner or agent of any building more than two stories in height from the lowest street or alley grade, used or occupied as a hotel, lodging house, apartment house, tenement or flat building shall at all times keep conspicuously posted in every room and hallway of such building when used as a hotel or lodging house, and in every public hall of such building when used or occupied as an apartment house, tenement house or flat building, a white placard not less than 4x6 inches, printed in red in conspicuous type, giving full information as to the location of each fire escape in such building and the means of reaching the same and directions to be observed by tenants in the event of fire on the premises and distinctly stating that a red light indicates the location of a fire escape.

Section 652. The owner or agent of any building more than two stories in height from the lowest street or alley grade, used or occupied as a hotel, lodging house, apartment house, tenement house or flat building, shall cause to be placed and maintained at the end of each hall leading to or at the entrance of each room through which it is necessary to pass in order to reach any fire escape, a red light, which shall always be kept burning at night and which shall be on a separate service. He shall also cause to be posted and maintained on the door of every room through which it is necessary to pass to reach any fire escape a conspicuous notice directing persons to pass through such door for the purpose of reaching the fire escape.

Section 653. Every building two or more stories in height having a roof with a rise not exceeding 5 inches to the foot, shall have in every portion thereof between division walls at least one scuttle not less than 2 feet 0 inches by 3 feet 0 inches in dimensions with a stationary ladder leading thereto from the top floor; or at least one stairway leading from the top floor to a pent house, having a door not less than 2 feet 0 inches by 6 feet no inches in dimensions, which stairway, if enclosed, shall be provided with substantial hand rails, and

if not enclosed, shall be provided with substantial guard or hand rails on both sides. All ladders and stairways shall be of such materials as are allowed in the class of buildings in which they are constructed.

Every such ladder or stairway shall lead out of a public hall if the top floor is divided into rooms.

Every scuttle cover and pent house door on buildings having incombustible roofs as required shall be of incombustible material, or shall be covered with tin or galvanized iron. Such covers and doors shall be fastened on the inside only, with a movable hook or bolt which can be withdrawn without the use of a key.

Section 660. Elevator installations shall be good, safe and sufficient and shall be designed, constructed and installed according to accepted mechanical engineering practice. Such installations shall be suitable and complete, including the elevator enclosure, gates, shafts, machinery, cabs, cables, counterweights, supports, safety devices, controlling appliances and all other parts or appurtenances connected therewith.

Elevators in dwellings are not required to comply with the provisions of this Code relating to elevators.

The provisions of this Code relating to elevators having a run of not more than two stories shall apply only as deemed reasonably applicable by the Superintendent of Buildings.

Section 661. Every elevator shaft below the first floor level shall be enclosed with masonry or other fireproof walls and shall be provided with approved self-closing fireproof doors. When the elevator machine is located in the basement and projects out of the elevator shaft, an opening may be left in the shaft wall provided the room enclosing the engine is entirely enclosed by fireproof walls, having approved self-closing doors and windows.

Section 662. Every elevator shaft above the first floor level in fireproof buildings shall be enclosed throughout with fireproof material and approved doors.

Section 663. Every elevator shaft above the first floor level in non-fireproof buildings if within 20 feet 0 inches of a stairway, shall be enclosed with fireproof materials and approved fireproof doors.

Every passenger elevator enclosure in non-fireproof buildings, located

more than 20 feet 0 inches from a stairway, shall be of fireproof construction, or if not exceeding four stories and a basement in height may be of solid stud or approved laminated plank construction at least $3\frac{3}{4}$ inches thick, lined with tin as required for the covering of fireproof doors, or plastered on both sides with hard plaster $\frac{1}{2}$ inch thick. In all such cases the enclosures shall be provided with approved fireproof doors.

Section 664. Every freight elevator shaft and open hoistway shall be surrounded with a solid or open wood or metal wainscot on all floors, at least 6 feet 0 inches in height and shall be provided with a self-closing gate at each approach to said elevator or hoistway arranged to slide vertically. Such gate shall be as nearly 5 feet 6 inches high as practicable considering the ceiling heights and the lower rail shall be as close to the floor as possible when the gate is closed and yet provide proper headroom.

The openings through such railing shall not exceed 3 inches in their least dimension.

The openings through such gate shall not exceed 3 inches in least dimensions except that sufficient opening may be left to give access to the rope control and except when it is impracticable to place the lower rail at the floor level.

Section 665. All buildings erected or altered to be used as places of habitation, refuge or detention, shall have all passenger and freight elevator shafts enclosed throughout with fireproof materials and shall be provided with approved fireproof openings.

Every building used as a store, factory or workshop where more than 25 persons per freight elevator are employed on each floor, or where more than 100 persons per freight elevator are employed throughout the building, shall have the shafts of such freight elevators enclosed throughout with fireproof materials or with solid stud or approved laminated plank construction at least $3\frac{3}{4}$ inches thick, lined with tin as required for the covering of fireproof doors, or plastered on both sides with hard plaster $\frac{1}{2}$ inch thick. Such shafts shall be provided with approved fireproof openings.

Section 666. Every fireproof enclosure door leading to a freight elevator shall be arranged to close auto-

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matically when the elevator leaves the floor at which said door is located; or such door may be fastened opened by a fusible link that will fuse at a temperature of 180 degrees Fahrenheit, allowing the door to close automatically, provided the freight elevator or the enclosure at each floor is equipped with an additional door or gate at least 5 feet 6 inches high and built of fireproof materials.

Section 667. Every door and gate to an elevator shaft shall always be closed when the elevator leaves the level of the floor, or be so designed that the elevator cannot be started until they are closed.

Every door to any elevator shaft shall be so fastened that it cannot be opened from the outside without the use of a key, except that doors to such shafts containing automatic electric passenger elevators or automatic dumb waiters may be opened from the outside. Such doors leading to automatic elevators shall be equipped with devices that will keep all doors shut except the door at landing where elevator is stopped, and that will keep the elevator stationary while any doors leading into the shaft are open.

Section 668. Whenever any elevator shaft adjoins the outside walls of the building and windows are provided in said wall opening into such shaft, all such windows shall be fireproof or of wood with wire glass. Whenever windows are provided through the inside wall of any elevator shaft such windows shall be of wire glass set in metal frames.

Section 669. The sides of all elevator shafts containing the exits shall be free from dangerous projections and present as smooth and even a surface as practicable. The clearance between the car and platform and any part of the shaft or enclosure work shall not be less than $\frac{3}{4}$ -inch and the clearance between the car platform and the part of the shaft in front of the exits shall not be more than $1\frac{1}{2}$ inches.

Materials shall not be stored in any elevator shafts.

Section 670. Every passenger elevator shall have an enclosed cage at least 6 feet 6 inches high, built of metal, metal grill, wire glass, or combination of them. There shall be a solid canopy top, and a solid wainscot not less than 3 feet 6 inches high. There shall not be more than one doorway unless approved by the Superintendent of Buildings and confirmed by the Board of Appeals, and unless the doorways are provided with gates so arranged that when one is opened the other will close. In no case shall there be more than two doors.

In every automatic passenger elevator the doorway in the cage shall be equipped with a door so arranged that it will keep the elevator stationary while such door is open.

When the mesh or openings through the grillework of any passenger car exceeds $1\frac{1}{2}$ inches in their least dimension and such grillework is placed within 4 inches of any movable parts in the shaft, then such grillework shall be covered with sheet metal or a wire screen having a mesh not exceeding $\frac{1}{2}$ inch in its greatest dimension.

Section 671. No freight elevator shall be constructed with openings on more than two sides of the platform. Cars of all freight elevators shall be substantially enclosed with not less than No. 10 gauge, $1\frac{1}{2}$ -inch wire mesh extending to a height of 6 feet 0 inches on all sides, except on sides facing loading platforms.

The attachment known as "Baggage Crate" shall not be constructed as a part of any elevator.

Section 672. Cables on all elevators should be sufficient, both in size and number, to carry safely the load such elevators are designed to carry.

Elevator shall have not less than two cables.

Every cable hoisted passenger elevator shall have at least four cables. Every passenger elevator of the "drum" type carrying more than 1,500 pounds live load shall be provided with at least six cables. No hoisting counterweight cables on any elevator having a live load capacity of more than 1,500 pounds, excepting those for hand power elevators, shall be of less size than $\frac{1}{2}$ -inch in diameter.

Section 673. Passenger elevators shall be designed to carry safely a live load of not less than 75 pounds per square foot of floor area in the car.

Passenger elevators shall be limited to carry one person to each square feet of floor space in the car after allowing four square feet for the operator.

No passenger elevator shall have a platform in which the available standing room is greater than that determined by the rated capacity of the engine. In hospitals and tenements or apartment houses the available room may be increased for the handling of large furniture, provided the available standing room when used by passengers is maintained as above required by the installation of a hinged and locked seat or similar approved device, and provided the weight of such furniture does not exceed the maximum weight allowed for passengers.

Section 674. The cables used on all passenger elevators shall be figured with a safety factor of 8. Cables used on all freight elevators shall be figured with a safety factor of 6.

All cables of the same group shall be so installed and equipped as to bring an equal strain on each of said cables.

Section 675. All elevator installations which have the machinery overhead shall have steel beams to carry the sheaves and the machines.

Every wall, beam, girder and column used for the support of elevator sheaves or other elevator machinery shall be made strong enough to carry double the amount of the live and dead loads of the elevator and its machinery supported thereon without exceeding the safe unit stresses specified in this Code. All parts of the machinery of the elevator and appurtenances thereof, upon which the safety of the operation of the elevator depends, shall be likewise proportioned. The horizontal supports and the uprights upon which the elevator machinery and sheave beams

are carried, shall be of steel or iron, brick or concrete.

Section 676. There shall be provided clear headroom of at least 3 feet 0 inches for every passenger elevator and at least 2 feet 0 inches for every freight elevator between the top of the highest point of the car or platform framework and the overhead beams when the elevator is at the highest landing of its travel. Provided, however, that wherever the speed of any passenger elevator exceeds 300 feet 0 inches per minute or the speed of any freight elevator exceeds 100 feet 0 inches per minute, the clear headroom shall be 4 feet 0 inches.

Section 677. When the elevator machinery is placed at the top of the shaft there shall be provided a tight and substantial floor over the beams beneath the machine so as to prevent danger from falling articles; or a substantial iron grating or grille sufficiently strong to carry safely a man, shall be placed underneath the machine.

Section 678. Every passenger elevator shall have steel guide rails. All steel guide rails shall be fastened at least every 12 feet 0 inches in height or reinforced if the fastenings are more than 12 feet 0 inches apart. When guide rails of wood are permitted, they shall be so bolted together as to form a continuous post well supported and of ample strength. All guide rails shall have foundations designed to take the maximum emergency load.

Section 679. Every elevator shaft shall be provided with a pit the full size of the shaft and at least 3 feet 0 inches in depth below the bottom of the car or platform when such car or platform is on a level with the lowest landing of the shaft. Provided that where any elevator is installed the speed of which exceeds 300 feet 0 inches per minute, a pit of at least 4 feet 0 inches in depth shall be constructed.

Section 680. Every passenger elevator shall be fully equipped with efficient devices for safely stopping the car in case of accident to the cables or machinery.

Worm gear machines shall be provided with automatic stop and slack cable shifters.

Every electric passenger elevator shall have a safety switch located in the car to enable the operator to cut off the current supply in the motor in case of necessity. Every electric passenger elevator shall be equipped with an automatic car safety device mounted underneath the platform and connected to an automatic speed governor at the top of the shaft; with a safety brake and stop motion device on the machine; with limit switches in the shaft which automatically stop the engine when the car reaches the upper or lower limits of travel. Every drum type electric passenger elevator engine shall be equipped with a slack cable device to stop the machine in case the car meets an obstruction when descending or when the cables become loose or slack from any other cause, and such slack cable device must be so arranged as to make it necessary to reset it at the machine.

Every hydraulic elevator shall be

equipped with an automatic device for stopping the car at the upper and lower limits of travel, and every hydraulic machine other than those of the Plunger Type shall be equipped with an automatic car safety device mounted underneath the platform, the same as herein required for electric machines.

Every passenger elevator hereafter altered shall be provided with a device to prevent the falling of the car in case of failure or disarrangement of the machinery and when practicable the Superintendent of Buildings may require the installation of such other safety devices as are herein required for new elevator installations.

Section 681. Every passenger elevator shall be provided with a safety device that will cause the car to come to a gradual stop 6 feet 0 inches to 12 feet 0 inches after the safety device starts to operate. An increase of not more than 50 per cent. in the velocity of the car beyond its fixed normal velocity shall operate the safety device.

Section 682. Substantial bumpers of elastic materials shall be placed at the bottom of all passenger elevator shafts except in shafts designed for plunger elevators. Such bumpers shall be of such height as to prevent the safety device under the car platform from striking the bottom of the pit when the car rests on the bumpers.

Section 683. Every freight elevator having a run of more than one story and having a hand rope control shall be equipped with a hand rope locking device so that the elevator cannot be started from any floor except the floor at which the elevator is standing.

Section 684. It shall be the duty of the owner or agent of any elevator installation to notify the Superintendent of Buildings when such installation is completed and ready for test or inspection. The contractor installing the elevator machinery shall prepare for such test and inspection of the installation as hereinafter required without expense to the city.

Section 685. Elevator installations hereafter built or materially altered shall not be put into service until after the same shall have been tested and approved by the Superintendent of Buildings.

Section 686. It shall be the duty of the Superintendent of Buildings at least once in every twelve months to have made by a practical elevator inspector an examination of every passenger elevator that is not inspected by a liability company in good standing. The Superintendent of Buildings may require the owner or agent of any elevator to examine the same and make a report of its condition to the Superintendent of Buildings.

Section 687. Whenever any elevator or part thereof is found by the Superintendent of Buildings to be unsafe, he shall close such elevator from service, and may disconnect the power supply from such elevator. It shall be unlawful for any person to put such elevator so condemned into service until after all defects per-

taining thereto shall have been remedied and the elevator reinspected.

Reinspection and approval or disapproval shall not be delayed more than six hours after notice is received at the office of the Superintendent of Buildings that such elevator is ready for inspection.

Section 688. Every passenger elevator shall be tested at full speed going up and coming down while carrying the maximum load allowed.

Every passenger elevator shall be tested by reversing at full speed going up and down without live load. Every passenger elevator shall be tested by running at full speed into top and bottom limit switches without live load.

Every passenger elevator shall be tested by cutting it loose and allowing it to drop. An increase of not more than 50 per cent. in the velocity of the car beyond its fixed normal velocity shall operate the safety device and gradually bring the car to a stop within 6 feet 0 inches to 12 feet 0 inches after the safety device starts to operate.

Any other reasonable tests necessary to determine whether any elevator installation complies with the requirements herein prescribed may be required by the Superintendent of Buildings.

Section 689. Every elevator and all equipment connected therewith shall be so installed and proper room shall be so provided around the same as will permit of the proper care and inspection of said elevator and equipment. Every pent house shall be

provided with a door giving access from the roof.

Section 690. Passenger elevators shall be used for passengers only, except as herein provided. Combination passenger and freight elevators, commonly known as "Service Elevators," shall not be used for carrying passengers unless such elevators are provided with an enclosed cage as required for passenger elevators and are equipped with all the safety devices required for passenger elevators. Such combination freight and passenger elevators may have two openings if one opening is so arranged that it must be fastened shut before the elevator can be started, but in such case the opening to be used by passengers shall be on one side of the elevator only, except as otherwise provided for passenger elevator cabs.

Freight elevators not exceeding a speed of 100 feet 0 inches per minute may be used to carry a few employees at a time and an occasional passenger, under such regulations as the Superintendent of Buildings may prescribe.

Section 691. During the erection of a building the elevators may be used as construction elevators, provided they are good, safe and sufficient for such purposes, and provided they are protected on every floor with a substantial fence 5 feet 0 inches high with proper gates.

Section 692. No person under 16 years of age shall operate any passenger elevator and no owner or agent shall employ or permit any person under the age of 16 years to operate any passenger elevator.

PART 7 LIGHT AND VENTILATION

Section 701. No apartment shall contain less than two (2) rooms, exclusive of rooms containing bath or water-closet. One (1) of the two (2) rooms shall have a floor area of not less than one hundred twenty (120) square feet.

No other room in any apartment except bathrooms, toilet rooms, pantries, kitchens, reception halls, closets and sleeping porches, shall contain less than eighty (80) square feet of floor area. Every sleeping room designed for the accommodation of more than one (1) person shall contain not less than five hundred twelve (512) cubic feet of air space

for such person over fourteen (14) years of age and not less than three hundred (300) cubic feet of air space for each child under fourteen (14) years of age.

Section 702. Habitable rooms in places of habitation, refuge and detention other than residences shall not be less than eight feet, no inches (8 ft. 0 in.) in height from floor to ceiling.

Section 703. No part of any habitable room in any place of habitation, refuge or detention, other than residences, shall be enclosed or subdivided at any time as an alcove sleeping room unless such part of the

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room so enclosed or subdivided shall have an unobstructed and permanent opening into it equal to seventy-five per cent. (75%) of the floor area of such part or unless such part of the room is provided with the floor area, window area and volume of air elsewhere required.

Section 704. No sleeping room or living room in any place of habitation, refuge or detention shall hereafter be built or located in a cellar. Every such room in a cellar now used as a sleeping room or living room shall immediately cease to be so used, except that such rooms now legally so used may continue to be so used by adults only, provided such rooms are not more than two-thirds ($\frac{2}{3}$) of their height below grade level and provided such rooms have a total free window area of not less than one-tenth ($\frac{1}{10}$) of their floor area.

No such sleeping room or living room shall be located in any part of a basement unless the adjoining and enclosing walls and floor of such part shall be rendered damp-proof.

Section 705. In places of habitation, refuge or detention, other than residences, the total free window area of each habitable room requiring natural light shall be equal to at least one-eighth ($\frac{1}{8}$) of the floor area of such room and shall be not less than twelve (12) square feet in rooms other than kitchens, and shall be so located as to properly light all parts of the room. The top of at least one (1) window in every room shall be not less than seven (7) feet above the floor and all required windows shall be so constructed that at least forty-five per cent. (45%) of the window area may be open at one time.

Section 706. Every building or separate part thereof in which people congregate, live, sleep or work must have a room or rooms constructed therein for the enclosing of one (1) or more water closets.

Except where every room or suite of rooms has its own water-closet accommodations there shall be constructed on every floor used for sleeping purposes in hotels, clubs, lodging houses, dormitories, places of refuge and places of detention, a toilet room or rooms for the independent use of each sex occupying said floor and of sufficient size to accommodate two (2) water-closets for the first twenty-four (24) single beds, their equivalent or fraction thereof, and an additional water-closet for each additional twelve (12) single beds, their equivalent or fraction thereof located on the floor.

In every place of habitation occupied by one (1) or more families there shall be constructed within each space occupied by one (1) family a room or rooms designed to contain at least one (1) water-closet and one (1) bath tub or shower bath for the exclusive use of said family.

Section 707. All doors giving access to rooms containing water-closets shall be self-closing except where the room is for the exclusive use of one (1) family.

Rooms in which water-closets or urinals are located shall be separated from all other rooms by a substantial enclosure containing no openings into adjoining rooms or hallways, ex-

cept the door provided for entrance to toilet room; provided, however, that this shall not be considered to prevent the use of stationary windows for lighting purposes in said enclosure.

Rooms in which water-closets are located in restaurants or places where food or confectionery is prepared, concocted or manufactured for public consumption or for sale, must not open directly into any room where such work is being carried on.

Section 708. Every room containing one (1) or more water-closets or urinals shall be ventilated either by windows opening to the outer air, by an individual vent duct or by a mechanical ventilating system installed and operated in accordance with all the provisions of the ordinances of the City of Seattle pertaining thereto.

Windows for ventilating rooms containing water-closets or urinals shall not be less than one (1) foot in least dimension, nor less than three (3) square feet in area, nor smaller than one-eighth ($\frac{1}{8}$) of the floor area of the rooms ventilated thereby, and so constructed that at least forty-five (45%) per cent. of the window area may be left open.

Where individual vent ducts are used for ventilating water-closets or urinal rooms they shall be constructed of galvanized iron, encased in fire-resisting material as elsewhere herein required for ducts, and, except as otherwise herein provided, shall extend independently from the room to and above the roof. The unobstructed cross-sectional area of such a duct, and of any grillage at the opening thereof, shall be at least equal to two (2) square inches for each square foot of floor area in the room which it ventilates, except that in no case shall it be smaller than forty-eight (48) square inches.

Section 709. Every bed-pocket or bed-closet shall be ventilated by an exterior window or by an individual vent duct constructed of galvanized iron, encased in fire resisting material as elsewhere herein required for ducts, and extending from the bed pocket to and through the roof. Such ducts shall have a cross-sectional area of not less than forty-eight (48) square inches.

Section 710. All vent ducts serving bed-pockets, bed-closets, or rooms containing water-closets or urinals shall be vertical or as nearly vertical as is necessary to provide adequate ventilation in the room served. Such ducts shall be carried individually to not less than two (2) feet above the roof, or they may be joined together immediately below the roof, forming a common duct, provided said common duct has an area at least equal to all ducts entering therein and extends at least two (2) feet above the roof.

Section 711. Every apartment in which gas is burned for purposes other than lighting shall be provided with a chimney constructed as elsewhere herein required, or with one (1) or more sheet metal gas ventilating ducts so located that all heating devices, the ovens on gas ranges and any hoods that may be placed over ranges or plates may be connected thereto.

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Such ducts shall be constructed and encased as elsewhere herein required. Each duct shall have an area of not less than twelve (12) square inches. Four (4), and not more, ducts may be connected together provided the duct into which they enter has a cross-sectional area equal to that of all ducts entering same. Any number of ducts may be joined together immediately below the roof of a build-

floor level of the lowest room used for the occupancy which establishes the court width, provided said room depends upon the court for its light and ventilation.

Except as otherwise provided in this section, the width of courts shall not be less than indicated in the following table: provided, however, that no interior court shall be less than six (6) feet in width, no exterior court less than five (5) feet in width.

Places of habitation and refuge except residences, hotels and clubs

Clubs, hotels, office buildings, places of detention, factories and workshops

Minimum Width of Interior Courts	Minimum Width of Exterior Courts
Percentage of Court Height	Percentage of Court Height

25%

20%

20%

15%

ing, provided the duct area is not reduced.

All gas ventilating ducts shall be carried to at least two (2) feet above the roof and to such an elevation that no combustible material will be within two (2) feet of same.

Section 712. Vent shafts shall not be considered as part of the unoccupied court area of the lot, but may be used for the ventilating of rooms containing water-closets, urinals, slop sinks or baths, and when so used they shall contain no openings into rooms used for any other purpose. Except as herein otherwise provided, vent shafts may also be used for the ventilation of other rooms or for the lighting of rooms not herein required to be provided with natural light.

Vent shafts shall not be covered nor shall they be permitted to contain shelving or other obstructions.

When a vent shaft is used to supply fresh air to rooms containing water-closets or urinals it shall have a minimum cross-sectional area of one-twentieth (1/20) of the floor area of all rooms ventilated thereby except that when the vent shaft is located in a building or a part thereof occupied as a place of habitation, refuge or detention, the shaft shall have a minimum cross-sectional area of one-tenth (1/10) of the floor area of all rooms ventilated thereby. Provided, that no vent shaft shall be smaller than five feet, no inches (5 ft. 0 in.) in least dimension.

Section 713. Good and ample light, air and ventilation shall be provided for every building, and such light, air and ventilation shall be fully sufficient for the occupants and users thereof.

Rooms occupied as offices, workshops, factories and other rooms of like requirements for light, air and ventilation, shall be lighted with natural light through a ceiling or through an outside wall by windows facing a street, alley or court. Where courts are used as a required source of light or air they shall not be smaller than elsewhere required herein.

The height of courts shall be measured from the mean elevation of the adjacent court walls of the building which the court serves to the

When the length of an interior court exceeds the minimum width permitted above for such court by a distance equal to the height of the court, then the width may be the same as herein required for exterior courts; should the length exceed the above specified minimum width, but not be equal to the sum of it and the height of the court, a proportionate reduction in width will be permitted.

Fire escapes shall not be considered as obstructions to the area of courts, provided such courts and fire escapes fulfill the uses for which they are intended.

Section 714. Any story which is used for any occupancy mentioned in the following table, shall be provided with a court or courts having a total area of not less than the percentage of lot indicated for said respective occupancy.

If, however, more than three (3) floors of any building are used for an occupancy mentioned in the following table and requiring a court, then the area of said court or courts shall be increased throughout by an amount which is equal to two (2%) per cent. of the area of the lot for each story in excess of three (3) that is used for the occupancy necessitating said court.

Provided that above a height of one hundred twenty-five (125) feet, and below a height of two and one-half (2½) times the width of the widest street upon which the building abuts, the additional court area of two (2%) per cent. per floor need not be carried down to the bottom of the court, if the court area at any story level above said height is at least equal to the court area called for in the table below, plus an additional two (2%) per cent. of the area of the lot for each floor in excess of three (3) that is used for the occupancy necessitating said court.

For the purpose of determining the required size of courts no corner lot shall be considered to be more than sixty (60) feet in width. When two (2) or more narrower lots, one (1) being located on a corner, have a total width of sixty (60) feet or more and are built upon as a unit of property, a width of sixty (60) feet may be considered as a corner lot, for the purpose of determining court areas.

	Places of Refuge and Habitation except Hotels and Clubs.	Hotels, Clubs and Places of Detention.	Office Buildings.
Lots surrounded by thoroughfares ..	0%	0%	0%
Corner Lots on 3 streets	13%	8%	3%
Corner Lots—2 streets and an alley .	15%	10%	5%
Corner Lots on 2 streets	17%	12%	7%
Lots on corner of 1 street and 1 alley, with greater frontage on street ...	19%	14%	9%
Lots on corner of 1 street and 1 alley, with frontage on street and alley equal	20%	15%	10%
Lots on corner of 1 street and 1 alley, but with greater frontage on alley .	21%	16%	11%
Inside Lots on 2 streets	23%	18%	13%
Inside Lots on 1 street and an alley	25%	20%	15%
Inside Lot on 1 street	27%	22%	17%

Section 715. No building shall exceed a height of two and one-half (2½) times the width of the widest street on which the building abuts, except that towers for occupancy may be erected above said height, if they are at least twenty-five (25) feet from any lot line other than a street line; if they do not exceed an area of twenty-five (25%) per cent. of

the lot area; and if they do not exceed sixty (60) feet in length or breadth.

Workshops and factories, other than feed or flour mills, shall not exceed a height of eighty-five (85) feet. Stores, warehouses and storage garages shall not exceed a height of one hundred twenty-five (125) feet.

PART 8 PLACE OF PUBLIC ASSEMBLY

Section 801. Places of public assembly shall include all buildings and parts of buildings used for the purposes herein defined under the several terms: Churches, Public Assembly Halls, Amusement Halls, Theatres, Moving Picture Theatres and Schools. Places of Public Assembly shall comply with the general structural provisions of this Code and the special provisions contained in this Part.

Every place of public assembly shall have at least one means of egress on a public street.

The term **exit** applies to any doorway or other opening in the outer walls of a place of Public Assembly through which people may pass out, and is to be understood as including entrances.

Section 802. The term church used in this Code shall include every building used as a church or place of public worship. Churches shall conform to the requirements for buildings in the several districts. They shall also conform to the provisions relating to Public Assembly Halls in so far as the same are applicable, except as provided in the following section.

Section 803. Churches with seating capacity for not over 750 persons are not specially limited as to class of construction, otherwise than provided in the preceding section.

Every church having a seating capacity of more than 750 and less than 1,750 shall be built of fireproof or mill construction.

Every church having a seating capacity of more than 750 and less than 1,750 persons shall be built of fireproof construction, except that roofs may be constructed as required for school buildings.

In computing the seating capacity of church pews an allowance of 20 inches of the pew length shall be made for each person.

Section 804. The term Public Assembly Hall shall include every parish

hall, lodge hall, dance hall, banquet hall, skating rink, hall used for exposition, exhibition or place of assemblage or instruction other than a school as elsewhere defined, excepting such places as are included in the term Amusement Hall hereafter defined; provided that rooms used for assemblages of less than 100 persons shall not be regarded as Public Assembly Halls.

Such rooms and all Public Assembly Halls shall be provided with good and sufficient air and means of egress.

Section 805. No existing building, other than of fireproof construction, shall be connected to any Public Assembly Hall now existing or hereafter constructed with seating capacity for more than 250 persons unless there be, between such buildings, a fireproof wall extending from the ground to and through the roof.

In all such cases, each opening in the intervening wall shall be fitted with a substantial door, closed by a strong spring or equivalent closing device and kept closed when a person is not passing through. In addition, each said opening shall be equipped with an approved automatic fire door, all as approved by the Superintendent of Buildings.

Section 806. No part of an existing building, other than of fireproof construction, shall be used for a public Assembly Hall with seating capacity for more than 250 persons unless such part is separated from all portions of the same building used for other purposes by a fireproof wall extending from the ground through the roof and unless all openings in such firewall are equipped with approved automatic double fire doors, in which case such other portions may be constructed in the manner permitted for separate buildings of such class.

Section 807. Every building hereafter erected, containing a Public As-

sembly Hall or halls of an aggregate seating capacity of more than 500 and not more than 1,500 persons shall be built of fireproof or mill construction.

If an assembly hall or halls in any building have a total seating capacity of more than 1,500 persons such building shall be built of fireproof construction; provided, that buildings mainly used for exposition or exhibition purposes, and not used for theatrical purposes, and not exceeding 2 stories in height which have for public use only a main floor and one gallery and which have their walls and structural members of incombustible material and which comply with the provisions of the Code as to stairways, exits, and fire escapes, may have their temporary seats, boxes, show cases, platforms or booths constructed of combustible material; provided, however, that any and all draperies, bunting, or other inflammable decorations shall be treated with a fire-retarding solution, subject to the approval of the Superintendent of Buildings.

Section 808. In computing the seating capacity of any room or building used for Public Assembly Halls in which the seats are not fixed, an allowance of 6 square feet of floor area shall be made for each person, and all space between the walls or partitions of such room or building shall be measured in this computation. Provided, that in buildings standing at least 7'0" from any other building and not having more than 2 stories and each floor having its own separate exits, the seating capacity of each floor shall be estimated alone as determining the kind of construction required.

Moveable seats are not permitted in balconies and galleries having stepped floors.

Section 809. Every building containing a Public Assembly Hall or halls of an aggregate seating capacity of 750 persons or less, shall have a frontage upon 2 public spaces, of which at least one shall be a street, and the other, if not a street, shall be a public or private alley, not less than 10'0" wide, opening directly on a public street or alley.

Every building containing a Public Assembly Hall or halls of greater aggregate seating capacity than 750 shall have a frontage upon 3 open spaces, of which at least one shall be a public street, while the other 2, if not streets, shall be public or private alleys of a width of not less than 10'0" each, opening directly on a public street or alley; provided that a fireproof passageway at grade level, and not less than 7'0" in width may be used in place of one such alley, if such passageway connects with a public thoroughfare.

Section 810. The limitations of floor levels in buildings hereafter erected, occupied either wholly or in part for the purposes of Public Assembly Halls, shall be as follows:

No auditorium of a greater seating capacity than 1,000 shall have the highest part of its main floor at a greater distance than 15'0" above the average grade of adjacent streets and alleys, nor more than 10'0" above the grade at main entrance.

No room or rooms having a greater

seating capacity than 500 shall be at a greater distance above average grade than 25'0" nor more than 20'0" above the grade at main entrance.

No room or rooms used for the purposes of Public Assembly Halls having a greater seating capacity than 250 shall be at a higher level above the average grade than 35'0" nor more than 30'0" above the grade at main entrance; provided, however, that in the case of a building used either wholly or in part for the purpose of Public Assembly Halls, and built of fireproof construction, a room or rooms to be used for such purposes, and of an aggregate seating capacity of less than 500 may be located in any story thereof; but in such case, there shall be at least 2 separate and distinct flights of stairs from the floor or floors in which such room or rooms are located, to the ground, each of which stairs shall be not less than 4'0" wide in the clear and such floor or floors shall be equipped with emergency exit doorways, and have not less than one stairway fire escape.

In buildings of fireproof construction, banquet halls or ball rooms having a seating capacity of not more than 900 may be located on any floor. Such banquet halls or ball rooms shall have access to at least 2 interior stairways and not less than one stairway fire escape, the combined width of which shall be equal to at least 18 inches for each 100 persons for whom accommodations are provided in said banquet hall or ball room.

Section 811. Every Public Assembly Hall shall have at least 2 independent exits located as far apart as practicable. The combined width of exits shall be not less than 18 inches to reach 100 persons of the aggregate seating capacity, and for fractional parts of 100 a proportionate part of 18 inches shall be added; provided the main entrance in halls with seating capacity exceeding 250 shall not be less than 5'0" wide, and no exit doorway shall be less than 4'0" wide.

If the seating capacity is 500 or more there must be at least two 5'0" exits, and if the seating capacity is 700 or more there must be at least one additional independent exit.

Section 812. Distinct and separate places of exit and entrance in Public Assembly Halls shall be provided for each gallery. A common place of exit and entrance may serve for the main floor of the auditorium and the balcony, provided its capacity be equal to the aggregate required capacity of all aisles or corridors leading from the main floor and such balcony to such place of exit and entrance.

Section 813. Any room or rooms used for the purposes of Public Assembly Halls, having a seating capacity of more than 500, shall, if not at grade level, have emergency exits and outside stairs for same equal in width to $\frac{1}{2}$ of the exits required for the main exits, and such emergency exits shall lead directly to a public thoroughfare.

Doors leading to emergency exits shall not be less than 3'0" wide and emergency stairways shall not be less than 4'0" wide. Such emergency exits and stairways may be built in-

side the walls of such building of a width not less than 4'0", provided they are enclosed by a fireproof partition not less than 4 inches thick; and further provided, that the stairs themselves are constructed of incombustible material. Emergency stairways may descend into open spaces or passageways, provided they do not obstruct more than $\frac{1}{2}$ of the width of such open spaces or passageways. All emergency exits, stairs and passages must be kept free from obstruction of any kind.

Section 814. The width of corridors, passageways, hallways and doors adjacent to, connected with or a part of any room used for the purposes of a Public Assembly Hall shall be computed in the same manner as is herein provided for aisles, excepting, however, that no such corridor, passageway or hallway shall be less than 6'0" in width, and no such doorway shall be less than 5'0" in width.

All doors affording access directly or indirectly to the street, alley or corridor from any room used for the purpose of Public Assembly Hall shall open outward.

Exit doors shall not be obstructed by draperies, and during the time any such room or rooms are open to the public, said doors shall not be locked or fastened in any manner so as to prevent them from being easily opened outwardly; and such doors shall be constructed and maintained so as to require no special knowledge or effort to open them from the interior.

Section 815. Aisles in any room used for the purposes of a Public Assembly Hall shall have in the aggregate a width of 18 inches for each 100 of the seating capacity of such room, and for fractional parts of 100 a proportionate part of 18 inches shall be added; but no aisle shall be in any part less than 2'6" wide. If aisles are widened toward the entrances at the ratio of $1\frac{1}{2}$ inch for each 5 running feet, the aggregate width shall

be considered to be the sum of the average width of all the aisles.

Steps shall be permitted in aisles only as extending from bank to bank of seats, and whenever the rise from bank to bank of seats is less than 5 inches, the floor of the aisle shall be made as an inclined plane, and where steps occur in outside aisles or corridors, they shall not be isolated, but shall be grouped together, and there shall be a light so placed as to illuminate such steps in such outside aisles or corridors.

All aisles and passageways in and leading to churches and public assembly halls shall be kept free from chairs and all other furniture or obstructions whether by persons or things during all services, performances, exhibitions, lectures, concerts, balls or other public assemblages therein.

Where there are emergency exits located at the sides of such rooms, there shall be a cross aisle giving access to such exits. The location of emergency exits and cross aisles shall be subject to the approval of the Superintendent of Buildings.

Section 816. There shall be not more than 14 seats in any one row between aisles, and in a room or rooms used for the purposes of Public Assembly Halls, of a seating capacity greater than 400 persons, there shall be an aisle on each side of any bank of seats where there are over 9 seats in a row. Rows of seats on any floor of any Public Assembly Hall shall not be less than 32 inches from back to back, measured horizontally, and no bank of seats shall be of a greater rise than 21 inches. All seats in galleries having platforms on inclined floors shall be firmly fixed to the floor. Moveable seats in rooms accommodating more than 400 persons shall be fastened together in banks of not less than 6 seats.

Section 817. Gallery fronts, platforms for seats, and seating arrangements in balconies and galleries in

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GENUINE PARTS.

Public Assembly Halls shall comply with the requirements for theaters except as otherwise approved by the Superintendent of Buildings.

Section 818. Every hall or room used for the purpose of a Public Assembly Hall not at grade level shall have access to not less than 2 exit stairways. The combined width of stairways in buildings used wholly or in part for Public Assembly Halls shall be 18 inches for each 100 persons of the aggregate seating capacity of all rooms used for such purposes in such building and for fractional parts of 100, a proportionate part of 18 inches shall be added; but no stairway in such building shall be less than 4 feet 0 inches wide in the clear; provided that in any such building having a room or rooms, balcony or gallery, used for the purpose of Public Assembly Halls the aggregate seating capacity of which does not exceed 250 persons, 2 separate and distinct stairways, each 3 feet 0 inches wide, shall be required, and shall be located as far apart as practicable.

Section 819. Every portion of a building used as a Public Assembly Hall and all outlets therefrom leading to streets or spaces connected therewith, including the vestibules, halls, corridors, passageways and stairways, exits and fire escapes shall be properly lighted whenever such building is occupied, and the same shall be kept so lighted until the entire audience have left the premises; and every passageway, corridor, stairway and exit shall be provided with a sign indicating the way out of the building, the letters of which shall not be less than 6 inches in height.

All lights indicating exits in vestibules, halls, passageways, corridors or other means of egress from the building shall be controlled by a separate shut-off located near the main entrance, and controlled only in that particular place.

A red light furnished by electric light on independent current shall be kept burning, in connection with the word "EXIT" over every such opening during the entire time such building is occupied between sunset and sunrise, and whenever such word is not plainly visible by daylight.

Flues used to carry off heat from open lights shall be of incombustible material and shall have at least 12 inches of clearance from any combustible material.

Section 820. Every public Assembly Hall with accommodations for 1,000 or more persons shall be provided

with at least one stand pipe and fire escape ladder on the outside of the building in a street or alley, extending to the roof, with hose attachment close to a window or door at each floor or gallery.

Section 821. No Public Assembly Hall shall be opened to the public until the same shall have been inspected and found to comply with all the provisions of this Code in relation thereto, and a permit for such opening shall have been issued by the Superintendent of Buildings.

Section 822. The term Amusement Hall shall apply to every room used for theatrical purposes, every lodge room, auditorium or Assembly Hall, having a seating capacity less than 750 and having a curtain with a limited amount of scenery and having not more than one balcony or gallery. Amusement Halls shall conform to the provisions relating to Public Assembly Halls and to the following special requirements.

Section 823. All seats in Amusement Halls shall be spaced as required for theatres. If there is a balcony or gallery all seats in same must be securely fastened to the floor. In the main auditorium if the seats are not fastened to the floor they shall be fastened together in banks containing at least six seats each.

Section 824. In any Amusement Hall, the area of the stage back of the proscenium wall shall not exceed 1-5 the area of the auditorium and shall have no traps or movable sections in the floor.

Section 825. When the seating capacity of any Amusement Hall is greater than 500, allowing 6 square feet of floor to the seat, the proscenium wall must be of brick or other equivalent masonry of the thickness as required elsewhere in this Code and shall extend at least 4 feet 0 inches above the stage roof. When the seating capacity is less than 500 the proscenium wall may be built of metal studs with metal lath and cement plaster at least ½ inch in thickness on both sides. All allowed openings except the curtain opening, through the proscenium wall shall be protected by approved fireproof doors on each side.

Section 826. The curtain in every Amusement Hall must be of asbestos, and shall be hung as required for theatres. All scenery, borders and wings, shall be permanent, and no transient scenery will be permitted unless approved by the Superintendent of Buildings. All perma-

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for HEATING and VENTILATING

for DRYING and CONVEYING

ment scenery shall be painted with an approved fire resisting paint.

Section 827. All dressing rooms in Amusement Halls unless fireproof shall be metal lathed and hard plastered and all stud partitions where permitted shall be fire stopped at least 3 times in their height, and all stud partitions adjoining the stage shall have metal lath and cement plaster on the stage side. All doors must be approved fire doors.

Section 828. The fly galleries and rigging loft in every Amusement Hall must have steel supports but the floor itself may be of wood not less than 2 inches x 4 inches in dimension, covered with fireproof paint or cold water paint.

Section 829. The area of the stage skylight or smoke vents in every Amusement Hall shall be at least 1-20 of the floor area of the stage and shall be equipped to open as required in theatres.

Section 830. Proper natural or artificial ventilation shall be provided for all Amusement Halls.

Section 831. Every Amusement Hall shall have at least one 3-inch standpipe in the auditorium and one on the stage, with hose connections on every floor, gallery or gridiron, 50 feet 0 inches of 1½-inch hose shall be provided for each outlet. All valve outlets shall be quick opening, and reducers and other fittings shall be standard.

Section 832. The term Theatre shall apply to any building designed or used for the entertainment of spectators, for which an admission fee is charged, and having a permanent stage upon which movable scenery and theatrical apparatus is employed and having the space over stage extend to a height of 5 feet 0 inches or more above the top of the proscenium arch. It shall include theatres, opera houses, music halls, play houses, pavilions, vaudeville shows and assembly halls which conform to this definition; provided, however, that club halls and other halls with a seating capacity of less than 500, although occasionally used for theatrical presentation, shall not be considered as theatres within the meaning of the term as used in this section, notwithstanding the fact that movable scenery is used upon the stages thereof on such occasion. Such halls shall be regarded as Public Assembly Halls.

Section 833. In any building containing a theatre, that portion not required for the theatre may be used for other purposes not hereinafter prohibited if approved by the Superintendent of Buildings, provided masonry or other approved fireproof construction separates such portion of the buildings from the theatre. There shall be no openings through such fireproof construction except into a hall or corridor of a fireproof office building, and such openings shall be kept closed at all times, when no one is passing through, by doors as prescribed for emergency exits.

No portion of any theatre building hereafter erected or altered shall be occupied as a place of habitation, factory, workshop or for storage of any article or material that is inflammable or otherwise dangerous to

life except as approved by the Superintendent of Buildings.

Section 834. Outside of the First and Second Building Districts, every building hereafter erected or altered and containing a theatre not more than one story in height whose seating capacity is less than 750, shall be of fireproof, mill or ordinary masonry construction, and when not fireproof shall have all walls and ceilings covered with metal lath and cement plaster and all partitions fireproof or incombustible. The proscenium wall and stage and all rooms connected therewith or with the auditorium shall be of the construction hereinafter described. All aisles, passageways and exits must be good and sufficient and of such construction as will meet with the approval of the Superintendent of Buildings.

Theatres are not permitted in ordinary masonry buildings within the First or Second Building District.

Section 835. Outside of the First Building District, every building not more than one story in height above the established grade having no balcony or gallery and containing a theatre whose seating capacity is 750 and not over 1000, shall be of fireproof or mill construction.

Every such theatre when not fireproof shall have all interior walls, partitions and ceiling lathed with metal lath and plastered with cement plaster. The stage, dressing rooms and all other rooms connected therewith or with the auditorium must be of fireproof construction.

There shall be at least one exit on each of three sides of such building. Each such exit shall open directly upon a street or alley or free open space not less than 10 feet 0 inches wide adjoining a public thoroughfare: or shall open into a fireproof passageway or side court leading directly to such street, alley or free open space. Each exit and passageway shall be at least 5 feet 0 inches in width and the combined width of such exits shall be equal to not less than 2 feet 0 inches for each 100 of seating capacity of such theatre.

Theatres are not permitted in mill buildings within the First Building District.

Section 836. Every building hereafter erected or altered and containing a theatre whose seating capacity is 750 or more shall be fireproof except as hereinbefore provided.

Section 837. Every theatre, if located over, under or adjoining any other room, must be separated therefrom by fireproof floors and walls which have no openings through them connected with the theatre.

Section 838. Every building hereafter erected used wholly or in part for the purposes of a theatre, shall have a frontage upon two public thoroughfares, one of which shall be a street and the other, if not a street, shall be a public alley not less than 10 feet 0 inches in width.

Section 839. The auditorium floor of every theatre shall be in the first or ground floor and as near the sidewalk level as practicable.

The main entrance shall be at sidewalk level, and no steps from the auditorium entrance to the auditorium floor will be permitted.

To overcome any difference in level between courts, corridors, lobbies, passageways, auditorium and aisles on the ground floor, gradients of not over one to eight with no perpendicular risers shall be used. Side street and alley exits shall have similar gradients where practicable.

Floors of all exits shall be designed to be flush with adjacent floors by means of gradients where necessary.

Section 840. Every theatre accommodating 250 persons shall have at least two exits; when accommodating 500 persons, at least three exits shall be provided—these exits not referring to nor including the exits to the open court at the side of a theatre. Doorways of exit or entrance for the use of the public shall not be less than 5 feet 0 inches in width and for every additional 100 persons or portion thereof to be accommodated in excess of 500 an aggregate of 20 inches additional exit width must be allowed. All exits shall be located as far apart as practicable on each floor, balcony or gallery.

Provision shall be made for exits at least 3 feet 0 inches wide from all boxes, arranged so that egress from boxes shall be as safe as from gallery or balcony or auditorium floor.

At least two independent exits not less than 3 feet 0 inches wide shall be provided from the stage, located on opposite sides of the same and leading directly or through a fireproof passage, to a street or alley.

There shall be one means of egress to the roof or through windows or other exits from the gridiron and one from each fly gallery. Such exits, if there are two, shall be located at opposite ends of the floor served.

All doors of exits or entrances shall open outward and shall be hung to swing in such a manner as not to become an obstruction in a passage or corridor, and no such doors shall be so locked as to delay or obstruct in any way the rapid and free passage of people outward when the building is open to the public or during any performance therein.

No single door shall be less than 3 feet 0 inches wide, provided two doors may be used in each required 5 feet 0 inches doorway. No single door or leaf of a folding door shall exceed 4 feet 0 inches in width.

No architectural treatment, mirrors, false windows, doors or other decorations shall be so used as to give the appearance of a door or exit when no such door or exit exists. Every such treatment shall be removed from existing theatres within six months after the enactment of this Code.

All doors of all exits must be of approved fireproof construction, set in fireproof frames.

Section 841. In addition to the entrances and exits on the street required by the preceding section, there shall be reserved for service in case of an emergency an open court, corridor or space on the side not bordering on the streets, where said building is located on a corner lot, and on both sides of said building where there is but one frontage on the street. In case of a one-story building having an area not exceeding 4,000 square feet and with a seating capacity of less than 500 people, a

court 5 feet 0 inches wide on one side only shall be required, provided that all seats shall be on one floor, and no galleries be allowed in such building.

In all other theatres, the width of such open court or courts shall not be less than 7 feet 0 inches where the seating capacity is not over 1,000 people; above and not more than 1,800 people, 8 feet 0 inches in width, and about 1,800 people, 10 feet 0 inches in width. Said open court or courts shall begin on a line with or near the proscenium wall and shall at least extend the length of the auditorium proper to or near the wall separating the same from the entrance lobby or vestibule.

Each open court, corridor or space shall continue to a street or alley or a separate corridor therefrom shall extend through any superstructure that may be built on the street side of the auditorium, and shall have continuous masonry walls on each side of its entire length, with no projections into said corridor; and the ceilings, floors and stairways therein shall be fireproof.

The outer openings of all such courts, halls or corridors, if provided with doors or gates, shall have them opening toward the street. During the performance the doors or gates shall be kept open by proper fastenings; at other times they shall not be held closed by any fastenings that cannot be easily and quickly opened by anybody from the inside without a key.

Courts, halls, corridors or passages of an adjoining fireproof office building may be used as exits from a theatre and when so used they must be kept clear and free during performances.

The level of all said courts, halls and corridors shall be at the level of the sidewalk where they begin at the street entrance.

No passage leading to any stairs, exit or entrance shall be less than 4 feet 0 inches in width.

Every corridor, passageway and other means of egress from any office, smoking room, toilet room or check room shall permit of continuous passage to an exit without returning. Every such corridor, passage and other means of egress must be at least 3 feet 0 inches in width in the clear and have no exit doors or windows which can be locked from the inside, unless there be in such opening a clear area of thin glass sufficient for egress when broken.

Section 842. In addition to the ordinary exits, every theatre shall have not less than two emergency exits opening from each side of each floor of auditorium, balcony and galleries, either into a street or an alley, or into a court, corridor or hall.

These exits shall be closed with fireproof doors in fireproof frames and shall have only such fastenings as will readily yield to the direct outward pressure of one person. Said doors shall be at least three inches narrower than the court, hall, corridor or balcony upon which they open, and shall be hung in such a manner as not to obstruct the passage of people from exits above. Each door as above described shall open outward from an aisle or exit.

All balconies and stairways leading from exits shall be constructed

of iron, steel or other fireproof material throughout, and shall safely sustain a load of 100 pounds to the square foot, and shall not be less than 3 feet 0 inches in width. Such stairways shall have solid treads.

Section 843. In all theatres, every aisle on the respective floors in the auditorium, balcony and galleries having seats on both sides of the same, shall be not less than 3 feet 0 inches wide at the end farthest from the main entrance, and shall be increased in width toward such entrance in the ratio of one inch every five running feet. Aisles having seats on one side only shall be not less than 2 feet 6 inches wide at place of beginning, and widened toward the entrance at the ratio of one inch in every ten running feet, except that aisles in front of the boxes may be 2 feet 0 inches wide. There shall be aisles next to all walls of the auditorium.

Section 844. No seat in the auditorium, balcony or galleries of any theatre shall have more than six seats intervening between it and an aisle except that in each of the last eight rows next to the foyer on the main floor there may be seven seats intervening.

Seats shall be not less than 32 inches from back to back measured in a horizontal direction. All seats excepting those in the boxes must be firmly secured to the floor.

There shall be no seats in any aisle or cross aisle leading to an exit, unless such aisle is increased 2 feet 6 inches in width.

Section 845. Platforms formed to receive the seats in the balcony and galleries of any theatre shall be not more than 21 inches in height of riser, nor less in width of platform than the required distance back to back of seats.

If the number of banks of seats on the auditorium floor exceeds 20, an intervening cross aisle may be required leading to a side exit unless a direct exit is provided for each aisle. The number of banks of seats in the balcony and galleries shall not exceed 15, unless an intervening or cross aisle is provided between each 15 banks of seats or a direct exit is provided for each aisle.

Section 846. In all theatres in fireproof buildings the fronts of galleries shall be of fireproof construction, and in all other buildings may be of wood construction covered on both sides with approved metal or metal lath and cement plaster. The capping of all gallery fronts may be of hardwood or other approved material.

Section 847. All exits above the first floor in every theatre shall have independent stairs and exits to the street; provided, however, that a common place of exit or entrance may serve for the main floor of the auditorium and the balcony upon the following conditions (a) its capacity must be equal to the aggregate capacity of the outlets from the main floor and said balcony; (b) the bottom flight of the stairs leading from the balcony must not land at right angles or nearly so with the central exits of the common exit, unless there be a clear space or landing of at least $1\frac{1}{4}$ times the width of the stairs between the foot of

such stairs and such center line of the nearest exit doorway.

No stairway shall lead to a basement or cellar from any public part of a theatre in front of the proscenium wall, except from the foyer to a fireproof room below.

Every stairway serving for the exit of 100 people or less shall be at least 4 feet 0 inches wide, and shall be increased in the ratio of at least 12 inches in width for every additional 100 people to be accommodated. No circular or winding stairs for the use of the public shall be permitted.

In theatres having not more than one balcony and one gallery if the seating capacity be more than 500 on each floor, there shall be provided for each balcony or gallery at least two independent stairways. The same shall be located on opposite sides of said balcony and gallery.

Where there are more than one balcony and one gallery, one or more additional stairways shall be provided for each additional balcony or gallery. Where the seating capacity is 1,000 or less on each gallery floor, two direct lines of gallery stairs only shall be required, located on opposite sides of the gallery.

In both cases gallery stairs shall extend from the sidewalk level to the upper gallery, with outlets from each gallery to each of said stairways.

All inside stairways leading to the upper galleries shall be closed on both sides with masonry walls or fireproof partitions. Stairs leading to the front or lower balcony may be left open on one side, but in no case shall stairs leading to any balcony or gallery be left open on both sides.

When straight stairs return directly upon themselves a landing the full width of both flights, without steps, shall be provided. The outer line of such landing shall be curved to a radius of not less than 2 feet 0 inches to avoid square angles. Stairs turning in an angle shall have a landing without winders at said turn. In stairs where two flights connect with one main flight, there shall be no winders, and the width of the main flight shall be at least equal to the aggregate width of the side flights. All stairs shall have landings not exceeding 12 feet 0 inches apart perpendicularly.

Every enclosed stairway shall have on each side a strong and continuous handrail firmly secured to the wall, not less than two inches distant therefrom, and about 3 feet 0 inches above the stairs. Every staircase 8 feet 0 inches and over in width shall be provided with a center hand rail of metal not less than two inches in diameter, placed at a height of about 3 feet 0 inches above the center of the treads. Such handrail shall be supported on wrought iron, steel or brass standards not less than two inches in diameter, which standards shall be placed not less than 4 feet 0 inches nor more than 6 feet 0 inches apart, and securely fastened or bolted to the treads or risers, or to both. At the head of each such flight of stairs and at each landing, there shall be a post or standard at least 6 feet 0 inches in height to which the said hand rail shall be securely fastened.

Section 848. In every theatre there shall be a masonry division

wall separating the stage from the auditorium of thickness required by this Code and in no part less than 12 inches of brick or its equivalent, which wall shall extend at least 4 feet 0 inches above the highest adjoining roof of the stage or auditorium. The wall above the proscenium opening shall be supported by a beam or beams of iron, steel or reinforced concrete thoroughly fireproofed as required in fireproof buildings, or by a proper combination of such beam or beams and masonry arch.

No doorway or opening through the proscenium wall from the auditorium other than proscenium arch shall be allowed above the level of the stage floor, except as hereinafter provided. Such openings, as are allowed below the stage floor, shall have approved fireproof doors on each side of the wall, and the doors shall be hung so as to be opened from either side at all times without keys.

Nothing in this ordinance shall prevent one opening through the proscenium wall on each side of the proscenium arch, at the auditorium floor level, not exceeding 21 square feet in area, provided such openings be protected on each side by approved self-closing doors.

Section 849. The main curtain in the opening of the proscenium wall of every theatre shall be composed of long fibre asbestos twisted on brass wire and woven into a close cloth. The laps shall be sewed with two lines of brass and asbestos stitching, which laps shall not be less than one inch wide. Said cloth shall be lapped at least four times around the top and around the bottom bars with at least three lines of the stitching above specified.

The edge of the curtain shall be continuously reinforced by lapping and stitching and also with pieces of sheet metal for clips. The curtain shall be at least 30 inches wider and higher than the masonry opening, and shall have steel top and bottom bars of not less than two square inches in cross section, which bars shall be connected by four steel cables 3-16 inch in diameter.

There shall be $\frac{3}{8}$ inch standing cable with ends secured to steel brackets fastened to the wall and the lower ends amply counter-weighted to keep the cables taut at all times and where the cables pass through the stage floor, the holes shall be metal bushed.

The curtain shall have hardwood eyelets not over 18 inches center to center, around the standing cables on both vertical edges, which eyelets shall be secured to the curtain by brass clips riveted to the curtain with double sheet metal reinforcing.

There shall be steel lifting cables, $\frac{1}{2}$ inch in diameter, at each end of the curtain and at intermediate points not over 15 feet 0 inches apart attached to drum or pulleys located above the curtain.

There shall be emergency chains midway between the lifting cables to hold the curtain, which shall be equal in strength and efficiency to the lifting cables.

There shall be substantial steel guides on each side of the curtain from the stage floor to the level of the overhead sheaves. The metal guides shall lap the edges of the cur-

tain not less than 6 inches. The curtain shall be incombustible in all its parts and its operating devices.

The painting and the manner of tripping the curtain and the number of and the location of places for tripping shall be subject to the approval of the Fire Marshal.

A permit shall be obtained from the Superintendent of Buildings for the erection of each such curtain.

Section 850. In all theatres all stage scenery and framing, curtains and decorations made of inflammable material belonging to the building shall be painted or saturated with a paint or chemical solution which will render it non-inflammable, and shall be tested and approved by the Superintendent of Buildings and the Fire Marshal. Scenery painted with water color paint may be considered non-inflammable.

Section 851. In all theatres except one-story non-fireproof theatres outside the First Building District, the walls separating the actors' dressing rooms from the stage and the partitions dividing the dressing rooms, together with the partitions of every passageway from the same to the stage, and all other partitions on or about the stage, shall be fireproof. All doors in any of the said partitions shall be fireproof. All shelving and cupboards in dressing rooms, property rooms or other storage rooms, shall be constructed of metal, slate or of asbestos board not less than 3-16 inches thick, or other approved fireproof material.

Every dressing room shall have access to at least two means of exit, one of which shall be an independent exit leading directly into a street or alley or to a hall, corridor or court opening into a street or alley. Dressing rooms shall not be more than one story below the lowest street or alley adjoining the theatre. All stairs leading to dressing or other rooms above or below the stage except one-story non-fireproof theatres, shall be of iron or steel or other approved fireproof material, and not less than 3 feet 0 inches in width.

All windows back of the proscenium wall shall be arranged to open, and none of the windows in outside walls shall have fixed sashes, iron grilles or bars.

No workshop, storage or general property room shall be located on the auditorium side of the proscenium wall nor in any of the fly galleries.

Section 852. In every theatre other than one-story non-fireproof theatres, the stage floor shall be constructed as required for floors in fireproof buildings, except that openings may be left therein for the working of the scenery, traps and other mechanical apparatus, provided, said openings, when not in use shall be covered with boards or trap doors of maple, oak or other hard wood not less than 1 $\frac{1}{2}$ inches thick or vertical grain fir, not less than 3 inches thick and all supports shall be metal or metal covered or of other approved equivalent construction.

Section 853. In every theatre having a seating capacity of 500 or more, the rigging loft shall be constructed of iron or steel throughout, and fly gallery floors shall be of fireproof construction. In theatres having a seating capacity of less than 500 the

rigging loft and fly galleries may be of wood, with steel supports as required for amusement halls.

Section 854. In every theatre there shall be provided over the stage and with direct and open communication through any ceiling thereof, a metal framed skylight or skylights or other smoke vent openings equal in area to not less than 1-10 of the area of the stage. No single opening shall be of an area less than 1-5 of the total required area. The smoke vent openings shall be closed by shutters so constructed that they will open by their own weight.

Skylights used as such smoke vents shall be fitted with rolling sash shutters having suitable brass or other non-rusting metal wheels, journals and tracks. The tracks shall extend the entire length of the sash and an equal distance beyond the opening with a slope of not less than 1 to 10. The sash shall be glazed with common glass not more than $\frac{1}{8}$ inch thick, in panes not less than 300 square inches in area, and shall be set on curbs so located that the lowest portion of the tracks on which they run will be not less than 1 foot 0 inches above the roof. Immediately underneath the glass of all said skylights there shall be wire netting of not more than 1 inch mesh. All parts of shutters and frames shall be of incombustible materials.

If shutters occupying a vertical position when closed are used, they shall be hinged at the bottom and provided with a metal weight which shall cause them to open outward. This weight shall be so placed that the shutter is held in a closed position by a rope and on release of the rope the shutter will open its full width.

All such skylights and other smoke vent shutters shall be so constructed that the entire area of each will open instantly upon the cutting, burning or releasing of a loose twisted hemp cord not more than $\frac{1}{4}$ inch in diameter. Such cord shall be so arranged as to hold said skylight or other vent shutters closed and shall be carried downward to the lowest level that will not interfere with the scenery or rigging, and then carried through steel or wrought iron pulleys not less than 3 inches in diameter, with flanges not less than 1 inch wide, so arranged that the cord will cross the full width and length of the stage in both directions. Each of the portions of the cord crossing the stage shall be provided with two or more fusible link devices, one on each side of the stage, which will operate to release said cord at a temperature of 165 degrees Fahrenheit.

In addition to the above required hempen cord, there shall extend from the skylight or other shutters to each fly gallery and to the stage floor in a location approved by the Superintendent of Buildings, metal cords, or wires, so arranged that when pulled they will instantly cut off and release the hempen cord at the skylight or other smoke vent shutters and allow them to open. There shall be provided in each fly gallery and at the stage level a permanent sign in plain letters not less than 1 inch high, bearing the words, "In case of fire pull cord to open smoke vents."

No fastening or other device for

holding the shutters of the smoke vent openings in a closed position, other than the ropes with fusible links shall be attached to any such shutter.

No obstruction of any kind shall be placed in the way of a complete draft from the stage to the smoke vent openings except that required for the operation of the scenery. The entire gridiron shall be an open one, and no flooring shall be placed thereon.

Section 855. Good and sufficient air and ventilation shall be provided for all theatres. The auditorium of every theatre having a seating capacity of 500 persons or more shall be provided with a system of mechanical ventilation which shall provide 10 cubic feet of good outside air per minute for each person. Every such system shall be as approved by the Superintendent of Buildings.

All dressing rooms and other rooms in the theatre must be properly ventilated. Where registers or vents are provided back of the proscenium wall they must be of fireproof material and arranged with approved automatic closing devices.

Section 856. In every building containing a theatre every portion of the building devoted to the use of the public and all outlets leading to the streets, including the open courts, halls and corridors, shall be well-lighted with electricity during every performance, and shall remain lighted until the audience has left the premises. All said lights in the halls, courts, corridors, lobbies, or any other part of said building used by the audience, except the auditorium, must be controlled by a separate shut-off located in the box-office and controlled only in that particular place. The stage lighting shall be on a separate circuit from the auditorium.

Every exit shall have over the same on the inside the word "Exit" painted in legible letters not less than six inches in height, and also a red light of not less than 16 candle-power, on a circuit independent from all other lights in the building.

Section 857. On the program of each performance in every theatre, there shall be printed in plain black lines a diagram or plan of every gallery or floor, each plan occupying a space of not less than 12 square inches and showing distinctly the location of all exits, followed by a concise description of the exits and their locations.

Section 858. All theatres shall be provided with standpipes not less than 4 inches in diameter, as follows: One on each side of the auditorium with hose attachments on each floor; at least one on each side of the stage so near the proscenium arch as never to be obstructed, and with hose attachment on each floor, fly gallery and gridiron, and one in the carpenter shop or storage room if the same be in or contiguous to the building. All such hose attachments shall be kept clear from obstructions. Said standpipes shall be separate and distinct, receiving their supply of water from the street main through a connection of at least the same area as the standpipes.

They shall be fitted with good $2\frac{1}{2}$ inch valves at each outlet. National standard $2\frac{1}{2}$ inch coupling threads,

reducers from 2½ to 1½-inch, and shall be kept continually under the city water pressure and ready for immediate use. There shall be kept attached to each standpipe outlet 50 feet, or such length as may be directed by the Fire Marshal, of 1½-inch unlined linen hose, in good condition, and having a suitable nozzle attached. There shall be kept alongside of each outlet one spanner for each size of coupling.

In addition to the above, there shall be at least one 4-inch standpipe extending from 5 feet 0 inches above the street or alley grade to the roof and alongside of its regulation iron ladder fire escape, giving easy access to the roof. Such standpipe shall be so located by the Fire Marshal as to make important windows or doors accessible, and so that other fire escape balconies may serve for the ladder. At the bottom of this standpipe there shall be a two-way automatic Siamese connection with National standard 2½-inch coupling threads. At the top of this standpipe and at each window or door it passes, there shall be outlets with good 2½-inch valves and National standard coupling threads.

A separate and distinct system of automatic sprinkler pipes shall be placed in the soffit of the proscenium arch and behind the proscenium wall, not connected in any manner with the standpipe, but supplied with water from the city service and a tank or tanks so located as to develop pressure of at least 10 pounds per square inch at the highest sprinkler heads and containing not less than one gallon of water for each square foot of floor area to be sprinkled, which tanks shall be at all times filled with water. Said pipes shall connect with automatic sprinklers which will operate at a temperature of 165 degrees Fahrenheit, and so arranged as to sprinkle every square foot of stage in front of the curtain and the entire floor behind the proscenium wall, including the stage, the rigging lift, the fly galleries, all dressing rooms, property rooms, store rooms, paint rooms, stairs and the carpenter shop.

There shall be connected with the main supply pipe of the sprinkler system a pipe of the same size with suitable check valves which latter pipe shall run to a convenient point outside the building and end in a two-way automatic Siamese connection with National standard 2½-inch coupling threads. All piping for

standpipes shall be strong and well galvanized.

Section 859. No floor register for heating purposes shall be used in any theatre and no coil or radiator shall be placed in any aisle, or hall corridor, stairway or passageway used for egress, but the same shall be placed in recesses formed in walls or partitions.

All supply, return or exhaust pipes containing hot water or steam, shall be encased and protected by not less than two inches of concrete, or metal collars with not less than ½-inch open space around the pipe, where the same pass through any floor or woodwork.

No boiler or furnace used for heating or other purposes shall be located within the enclosing walls of a theatre, nor under any passageway, court or stairway used as a means of egress.

Section 860. There shall be maintained in good order in every theatre approved liquid chemical fire extinguishers. One of these shall be in the office, one on the stage, on each side of the proscenium arch, and others in such locations as may be designated by the Fire Marshal. With each extinguisher there shall be one pick head fire axe. There shall be in a conspicuous location on the stage three hooks with handles 25 feet, 15 feet and 10 feet long.

There shall also be kept in readiness for immediate use on the stage at least four casks of water, and two buckets to each cask. The casks and buckets shall be painted red.

Section 861. Every theatre shall be provided with an auxiliary electrical fire alarm system, which shall be connected with and operate a main fire alarm box located outside of the theatre building, but within the width of an abutting street of it, and connected with the city fire alarm system.

Section 862. The agent, lessee or manager, in active charge of every theatre, shall institute and maintain, under the direction of the Fire Marshal, such systems of fire drills that each employe in the theatre shall be trained to do a certain portion of the work of preventing and extinguishing fire and providing for the safety of human life. Drill work will include inspections of the curtain and stage vents and of all fire apparatus, devices and appliances and the necessary tests. In the months of October

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and April of each year, at a time of day when no performance is on, every theatre and its fire drills shall be jointly inspected by the Superintendent of Buildings and the Chief of Fire Department or the Fire Marshal. At such times the stage vents shall be operated, the asbestos curtain lowered and such other tests made as may be deemed necessary by the officials mentioned.

No theatre shall be opened to the public unless such fire apparatus is in its proper place and in good working order.

Section 863. No theatre, hereafter erected or altered to the extent of 40 per cent. of the original cost, shall be used as a place of public entertainment unless the same shall in all respects conform to the provisions of this Code relating to the construction of theatres.

Section 864. No theatre hereafter erected or altered shall be open to the public for public entertainment of any kind until the Superintendent of Buildings shall have examined the same and issued and recorded in his office a written certificate signed by him and by the Fire Marshal to the effect that such theatre conforms to the provisions of this Code, or to the ordinance under which the permit was issued, and no license for public entertainment in such theatre shall be granted or issued except upon presentation to the City Comptroller of such certificate.

Section 865. The term Moving Picture Theatre in this ordinance means a place of public assembly where celluloid or other combustible

films are employed in the projection of pictures or other representations before an assemblage of people. The term shall apply to the place of assembly and to all rooms, passages and other parts of the building connected to or used in connection with such place.

The term Moving Picture Machine in this ordinance shall apply to any form of mechanism using celluloid or other combustible films for the projection of pictures as above.

Every Moving Picture Theatre shall be well and properly ventilated and shall comply with the provisions relating to Public Assembly Halls and to the following special requirements.

Any place used as a Moving Picture Theatre, having a seating capacity of 750 or more, shall be subject to all the provisions relating to Theatres.

Section 866. Every building of other than fireproof or mill construction, when containing a Moving Picture Theatre, must have all its walls, partitions and ceilings plastered, using cement plaster, if in the First Building District, or must have finish deemed equally fire resistive by the Superintendent of Buildings; provided, that isolated one-story Moving Picture Theatres outside of the Second Building District may be unplastered except as elsewhere required by law.

Every Moving Picture Theatre having a balcony, gallery or galleries for seating the public shall be fireproof.

‡No Moving Picture Theatre shall be operated unless cut off from all

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other portions of the building in which it is located by fireproof or fire restrictive walls or partitions and ceilings in which any necessary openings are protected by self-closing fireproof doors.

Section 867. No Moving Picture Machine shall be operated in any place of assembly that does not open directly upon a street or alley.

Section 868. The entrances to all Moving Picture Theatres must be at least 5 feet in width.

In addition to the above required entrance, there shall be provided for every Moving Picture Theatre having within its enclosing walls 2,000 square feet or less of floor area, one exit at least 4 feet 0 inches wide, located at or near the opposite end of the room from the entrance—and leading direct to an alley or street; and one additional exit 4 feet 0 inches wide for each 1,000 square feet or major fraction thereof of floor area.

All exits must be located as approved by the Superintendent of Buildings, and must approach the street or alley by easy gradient or approved stairs; provided, that Moving Picture Theatres having the moving picture machine at the rear, or end opposite the entrance, and having the specified number and widths of entrances and exits conveniently located, shall only be required to have such rear exits as will offer convenient means of egress for all persons operating the machine and otherwise employed in that part of the Theatre.

During the time that a moving picture machine is being operated or any

assemblage of people gathered, doors and entrances and exits shall not be held closed by any fastenings that cannot be easily and quickly released by anybody from the inside without the use of a key. All said doors must be so hung as to swing outward. There shall be nothing to obstruct free passage at entrances and exits.

All Moving Picture Theatres having galleries must as a minimum requirement have all aisles, stairways and exits arranged and constructed as required for Public Assembly Halls.

Section 869. Every aisle in Moving Picture Theatres must be at least 3 feet 0 inches in minimum width, and for auditorium floors must increase toward the entrance at least one inch in width for every 5 running feet and shall lead directly to the exits. Steps in aisles of the auditorium will not be permitted. Aisles must not have a maximum gradient of more than 10% unless approved by the Superintendent of Buildings.

No moving picture machine shall be operated in any theatre, room or hall in which chairs or other furniture or other obstructions, whether by persons or things, are within the lines of aisles and passages as defined and described in this ordinance.

Section 870. All seats in every Moving Picture Theatre must be securely fastened to the floor and be at least 32 inches, back to back. From any seats there shall not be more than 6 intervening seats to an aisle.

Section 871. Every machine in-

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stalled or operated shall be enclosed within a booth.

All booths shall be at least 7 feet 0 inches high and have the following floor space according to the number of machines:

- 1 Picture Machine..... 6 ft.x 8 ft.
- 1 Picture Machine and stereopticon 9 ft. x 8 ft.
- 2 Picture Machines with or without stereopticon ...12 ft. x 8 ft.

Each booth must have one door 2 feet 0 inches wide by 6 feet 0 inches high, opening outward, closed by a strong spring and kept closed while the machine inside is in operation.

Section 872. Within the First Building District, no Moving Picture Machine shall be operated in any Moving Picture Theatre unless said machine or machines be inside of a booth constructed according to the following specifications:

The booth shall have a substantial braced frame of structural steel with riveted or bolted connections. The door must be of corresponding construction, and must be substantially hung with hinges in an angle iron frame and must be self-closing.

The covering of the top, sides and bottom must be of approved heavy sheet metal or asbestos lumber with all joints sufficiently lapped or covered and made tight.

Section 873. Outside the First Building District, Moving Picture Machines may be operated in Moving Picture Theatres if said machines be inside of booths made according to the following or equivalent specifications.

The booth shall have a substantial wood frame and shall be enclosed on the sides, the top and bottom with $\frac{7}{8}$ -inch matched sheathing. The door must be of corresponding construction and must be substantially hinged and made self-closing.

The ceiling and inside of Moving Picture booth walls shall be protected by a close fitting covering of tin with locked joints, and floor must be covered with approved asbestos lumber or other approved non-combustible covering. The exterior of walls and roof shall be of hard plaster or metal lath applied close to the wood sheathing.

Section 874. There shall be not more than two openings in the booth for each Moving Picture Machine, one for the operator and one for the machine. The opening for the operator's view shall not exceed 48 square inches and the opening for the machine shall not exceed 64 square inches.

The openings shall be provided with gravity shutters of not less than No. 14 B. & S. guage sheet metal, sliding in metal guides at least twice as long as the shutter, which, when closed, shall overlap the window opening at least one inch on all sides. The shutters shall be held open by a small combustible cord in series with a fusible link at each opening and one on the main cord so arranged that the link is suspended directly over the film when in the slide of the apparatus. The cord shall be so placed that the shutters may be easily released by hand.

Section 875. There shall not be more than two shelves, 12 inches wide and 4 feet 0 inches long, in any Moving Picture Booth, one for re-

winding and the other for storage. All shelves must be of slate, steel or other fireproof construction, or if constructed of wood shall be at least $\frac{7}{8}$ -inch thick and entirely covered with tin, with lock joints, and shall be supported by iron brackets.

The reels for the films on the machine must be encased in steel boxes with opening just large enough for the film to pass through, with covers so arranged that these openings can be instantly closed. No solder shall be used in the construction of these boxes.

A shutter must be provided in front of the condenser of the machine, arranged to be readily closed by the operator.

A separate metal case made without solder, shall be provided for each film when the film is not in the machine. All films must be kept in these cases.

Section 876. Every permanent Moving Picture Booth must be provided with an air inlet in two opposite sides of the booth for supplying fresh air for the operator. Each inlet must be 12 inches long by 3 inches high, the bottom located 3 inches above the floor of the booth. All inlets must be covered with wire netting of not greater than $\frac{1}{4}$ -inch mesh and must be securely fastened to the covering of the booth by means of metal strips and bolts or screws.

Near the center of the top of the booth shall be a circular opening at least 8 inches in diameter provided with a sheet iron flange securely fastened to the roof covering and made perfectly tight to prevent smoke getting out. Securely fastened on this flange shall be a vent pipe of sheet metal not less than 8 inches in diameter which shall lead to the outside of the building or into a fireproof flue. Such metal pipe shall be protected or spaced where it passes near any wood work according to the provisions of this Code governing stove pipes.

Inlets and outlets as above described may be omitted if booth has window through outside wall, supplying equivalent natural ventilation.

Section 877. If the house lights are controlled from within the Moving Picture Booth, an additional emergency control must be provided near the entrance, and kept at all times in good condition.

In the booth one light will be allowed for each machine and one for the rewinding bench, all separated by wire baskets, but no cutouts for any purpose whatever will be allowed within the booth. In the exhibition room there shall be provided a separate system of house lighting, and a separate system for red lights over exits, both controlled by a switchboard located at the entrance and within reach of the ticket taker. There shall be one light at each exit in a sign with red letters at least 5 inches high marked "EXIT."

Section 878. Every rheostat used in any Moving Picture Booth must be mounted on a slate insulator properly supported on steel supports properly fastened to the floor.

All machines must be securely fastened to the floor to prevent accidental overturning or moving of same.

Section 879. There shall be main-

tained in good order in every Moving Picture Theatre two liquid chemical fire extinguishers, which shall be considered "approved" when bearing the label of the Underwriters Laboratories, Inc. One of these shall be inside the moving picture booth and one outside, both as directed by the Fire Marshal.

Every Moving Picture Theatre shall be supplied with such portable implements or apparatus for fighting fires as are required for theatres of minimum seating capacity.

Section 880. No Moving Picture Theatre shall be permitted to open for entertainment of any kind until the Superintendent of Buildings shall have examined the same and issued and recorded in his office a written certificate of approval signed by himself and the Fire Marshal certifying that such theatre conforms to this ordinance or to the permit under which the same was built, and no license for any public entertainment in such theatre shall be granted or issued except upon presentation to the City Comptroller of such certificate.

The Superintendent of Buildings shall notify the Fire Marshal of permission given to operate any Moving Picture Machine so that it may be thereafter inspected.

Section 881. Permission to use Portable Moving Picture Booths which have been approved by the Superintendent of Buildings, does not extend to their use in any theatre or public hall in which permanent booths have been installed, nor are they to be considered as serving the purpose of permanent booths. No Moving Picture Machine shall be operated in a portable booth for any but temporary or occasional exhibitions.

Each portable booth shall be plainly marked with the name of the maker and with serial number in letters and figures not less than 2 inches high. Before a portable booth shall be used, approval must be obtained from the Superintendent of Buildings and a special permit from the Fire Marshal shall be issued for the use of an approved booth, said permit referring to the name and number of the booth. The operator shall be required to have this permit on his person whenever he may be operating or setting up or taking down the booth, any neglect so to hold this permit shall be deemed cause for the forfeiture of the operator's license.

No Moving Picture Machine shall be operated in a portable booth unless said booth be constructed according to the following specifications:

Portable Asbestos Booths are to be at least 6 feet 6 inches high and 5 feet square are permitted for use of one picture machine only.

The booth shall have a substantial metal pipe frame connected by approved metal pipe fittings, and there shall be a hinged ventilator trap on top not less than 2 feet 0 inches wide extending the full width of the top.

The sides and top shall be of approved asbestos cloth secured to the frame, and all joints except the necessary flap door must be made tight with non-combustible fastenings, and such covering shall be kept in good repair and free from rents and holes. The frame shall stand in the center of a 7-foot square floor mat of approved asbestos cloth, which must be kept in good repair.

The top of the frame of every portable Moving Picture Booth shall be fitted at the rear with a hinged ventilator trap as described. The asbestos cloth top covering shall be so arranged and so attached to the frame that when the hinged trap is raised the asbestos covering shall be raised also at the rear. Suitable devices shall be supplied for maintaining this ventilator trap in a lifted position so as to form a clear ventilating space at the rear of not less than 6 inches high extending across the full width of the booth.

All openings shall have edges hemmed, and shall be covered by asbestos flaps arranged to close automatically with cords and fusible links.

Section 882. All details of the construction of permanent and portable Moving Picture Booths must be approved by the Superintendent of Buildings.

Section 883. The term School Building shall include every building used as a place of learning, school or convent—but shall not include studios or rooms used for instruction in buildings used for other purposes and in which the aggregate number of persons receiving instruction at any one time does not exceed 100. School Buildings shall conform to the classes of buildings in the several building districts, and to the following special provisions:

Section 884. School Buildings which have a seating capacity of 300 or less and which are not over two stories and basement in height are not specially limited as to class; provided that no portion of such building if of frame construction shall be used for assembly hall purposes above the first floor.

School Buildings which have a greater seating capacity than 300 and not exceeding 1,000, and which are



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more than one story and not over three stories and basement in height, shall be built of mill or fireproof construction.

School Buildings which have a greater seating capacity than 1,000 and which are more than one story and basement in height, shall be built entirely of fireproof construction, except that the roof may be of mill construction outside the First Building District, provided that no timber truss shall be used of such design that its deflection would produce outward thrust upon the bearing walls or piers, and provided the roof is covered with incombustible material.

School Buildings over three stories and basement in height shall be of fireproof construction, including the roof.

Section 885. Where additions are made to School Buildings already erected, provided that such buildings are not more than two stories in height, the construction, if approved by the Superintendent of Buildings, may be of the same kind of materials as used in the old buildings to which additions are made, provided that the heating plants in such buildings are located in fireproof rooms, and that all new stairways are constructed of fireproof materials.

Section 886. It shall be unlawful to construct or maintain any class room for school purposes in the basement of any school building hereafter erected, except for teaching domestic science, manual training or physical culture, if the floor of such room is below the surface of the surrounding ground on all sides of such room.

Section 887. No story above the basement story of any School Building shall be less than 12 feet 0 inches in height.

Any attic story in any building in which school or classrooms are fitted up shall be considered as a story in the height of such building.

Section 888. The total glass area of outside windows and skylights of each class room, recitation room or study room in School Buildings shall not be less than one-fifth of the floor area of such room.

Section 889. Assembly halls in connection with schools and colleges shall be constructed in accordance with the provisions relating to Public Assembly Halls, so far as the same are applicable, except as otherwise specifically provided.

Section 890. No part of the main floor of any assembly hall or auditorium in any School Building having a seating capacity exceeding 400 shall be at a greater height than 14 feet 0 inches above the ground adjoining such building.

Section 891. Every auditorium or assembly hall in School Buildings having a seating capacity of more than 500 shall be provided with such

emergency exits and stairways as are required for Public Assembly Halls unless otherwise approved by the Superintendent of Buildings. The exits shall be marked and lighted as in Public Assembly Halls.

Section 892. The minimum width for corridors, passageways, hallways and doors in school buildings shall be not less than 6 feet 0 inches for corridors, passageways and hallways, and not less than 3 feet 0 inches for doors, except where two or more doors are grouped together, in which cases the minimum width of each of such doors shall be at least 2 feet 6 inches.

All doors throughout such buildings shall open outward, and all entrance and exit doors shall be unlocked at all times when such buildings are occupied for school purposes or by the public. The fastenings for all doors shall be of such type as may be easily operated from the inside by means of a lever or other satisfactory device to draw the bolts or fastenings.

Section 893. The width of aisles in auditorium and assembly Halls in School Buildings shall be as required in Public Assembly Halls. All groups of seats shall be so arranged that they shall have an aisle on each side, and not more than 12 seats in any one row shall be placed between aisles, and all such seats shall be securely fastened to the floor.


Main aisles in class rooms, recitation and study rooms shall not be less than 2 feet 6 inches in width in their narrowest parts, and ample exits shall be provided therefrom, provided that individual desk seats may be arranged as desired by the School Board subject to approval by the Superintendent of Buildings.

Section 894. Stairways in School Buildings based on the combined capacity of the auditorium and school rooms shall conform to the requirements of Public Assembly Halls.

Provided that School Buildings having more than three rooms above the first story shall have at least two flights of stairs so located that each will be accessible from every room above the first story.

Section 895. Ventilation ducts must be provided of sufficient capacity to change the volume of air in all class rooms at least once every 10 minutes with continuous operation during school hours, except open air class rooms.

Section 896. Every portion of any School Building devoted to the public and all outlets therefrom leading to the streets, shall be well and properly lighted during the entire time such building is occupied by the public at night. All gas and electric lights in the halls, corridors, lobbies, stairs and exits shall be controlled by a separate cut-off, and shall be independent of all other lights in such building.

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PART 9 BUILDINGS FOR SPECIAL USES

Section 910. All buildings used for Places of Refuge and Detention, if three (3) stories in height above the established grade, shall be of fireproof or mill construction. Such buildings if more than three (3) stories high, shall be of fireproof construction; and no such buildings other than police stations or jails shall exceed six (6) stories in height.

Section 911. In all corridors and rooms used by patients in every building hereafter constructed for or converted to hospital purposes, all reentrant intersections of walls, floors and ceilings shall be formed with tangent coves.

Section 912. Every building over three (3) stories in height hereafter constructed for or converted to hospital purposes shall have at least one (1) elevator, the floor dimensions of which shall not be less than seven (7) feet, no inches, by five (5) feet no (0) inches, and said elevator shall be enclosed in a fireproof shaft.

Section 913. All buildings used for places of refuge shall be equipped with fire escapes not less than three (3) feet no (0) inches in width, which shall, in number, location and structural features, comply with all of the general provisions of this Code relating to fire escapes.

Section 920. Stable floors shall be constructed either of concrete laid directly on the ground, or of wood planking on joists. If of concrete, the floor shall not be thinner than three (3) inches, shall be of concrete not leaner than that produced by a 1:2:4 mix, and shall have a hard, durable, impervious surface.

Where the floor is of concrete laid on the ground, the wall in the rear of the stalls shall be constructed of concrete to the height of at least two (2) feet above the stable floor, and shall have a coved base.

Wood floors may be constructed of tongued and grooved or spliced three (3) inch plank, with joints made watertight by the use of white lead, or of three (3) inch plank with bevel edges made watertight by calking with oakum and pitch, or of two (2) inch plank made water tight by covering it with a waterproof membrane on top of which is placed at least two and one-half (2½) inches of concrete having a hard, impervious surface.

Yards used for the close confinement of cattle must have concrete floors laid directly on the ground.

Section 921. All stall floors shall drain into gutters. Such gutters and all sumps for washing of vehicles shall be connected to a drainage system of cast iron pipe leading to a trapped catch basin, and from such catch basin proper connections shall be made to a public sewer or cesspool. Openings from gutters and sumps to drains shall be protected by iron strainers set in iron frames so as to be removable. Drainage pipe shall be not less than four (4) inches in diameter, except that laterals draining but one stall may be of three (3) inch pipe. Catch basins must be constructed of masonry or iron and be at least two (2) feet no (0) inches in any internal dimension, and be provided with vent pipe not more than eight (8) inches from seal.

A three-fourths (¾) inch hose bibb,

equipped with hose, shall be so placed that the drainage system may readily be flushed, and it shall be required that all stable floors be thoroughly cleaned and flushed at least twice each week.

Section 922. Every stable must be provided with one (1) or more fly-tight, water-tight receptacles for manure constructed of two (2) inch tongued and grooved lumber and of such dimensions as to contain all accumulations of manure, and no manure shall be allowed to accumulate on the floors or on adjacent grounds: provided, however, that on premises in the Third and Fourth Building Districts of one (1) acre or more in extent, manure may be stacked in such a way as not to attract flies nor emit offensive odors. Receptacles for manure located within any building shall be vented, through air-tight shaft of at least forty-eight (48) inches cross-sectional area extending above the level of the roof at a point not less than twenty (20) feet from any adjacent property.

Section 923. The means of egress from stables shall conform to other requirements of this Code for means of egress from factories and workshops, except that from floors accommodating animals, the stairways shall be replaced by inclines having a slope not greater than 1:2. No exit door shall be narrower than four (4) feet, and no incline narrower than five (5) feet.

Section 930. Size B garages, (those having a total floor area of not to exceed five hundred and fifty (550) square feet), may be of frame construction.

The total floor area of all frame constructed Size B garages located upon any lot shall not exceed ten per cent. (10%) of the total area of said lot.

Section 931. A garage to accommodate not more than one (1) automobile may be located in a residence if the interior of the garage, except outside doors and windows, be ceiled with shiplap or matched lumber and than lathed and plastered, or ceiled with shiplap and covered with two (2) thicknesses of plaster board, breaking joints.

There shall be no openings into other portions of the residence except fixed fireproof windows and doors constructed as required for fire doors or built of at least two (2) thicknesses of dry tongued and grooved one-inch (1") lumber, and covered on the garage side with either tin or galvanized iron. The sheet metal shall be lock jointed, as required for fire doors, or be a single sheet. In either case the metal must be carried around the edges of the door to a distance of at least two (2) inches on the uncovered side of the door, and shall be securely nailed. The door must be self-closing or automatically closing. The jams and heads must be covered with metal to a distance of at least four (4) inches beyond the edge on both sides.

Section 932. One (1), and not more than one (1), Size B garage, as defined in this Code, may be located in a residence or in any building not more than two (2) stories high and

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occupied as a transit shed for freight, or as a warehouse, factory, store, workshop or office building, if the walls, partitions, floors and ceilings enclosing the garage are of four (4) inch solid wood mill construction, having plaster on the garage side of the enclosing walls, partitions and ceilings. When the mill enclosure is of laminated construction, the plaster may be omitted on the exterior side if the plaster on the garage side is applied on metal lath or plaster board. When the garage is located in the lowest story of the building and has enclosing walls of the above construction extending to the ground, the floor of the garage may be of such construction as is required for the remainder of the building.

There shall be no openings into other portions of the building except self-closing fire doors, or fixed fireproof windows.

Section 933. One (1), and not more than one (1), Size B garage as defined in this Code, may be located in any building more than two (2) stories high and occupied as a transit shed for freight, or as a warehouse, factory, workshop, store or office building, if the walls, floors and ceilings enclosing the garage are constructed as specified in Section 932 hereof, with the further provision that all exterior openings shall be fireproof, except those on street fronts, and that there shall be no openings into other portions of the same building unless the garage is equipped throughout with an automatic sprinkler system, in which case self-closing fire doors and fixed fireproof windows shall be permitted.

Section 934. All buildings which are to be occupied as Size A garages (those having a total floor area in excess of five hundred and fifty (550) square feet), shall be of fireproof, mill or ordinary masonry construction; provided, however, that ordinary masonry buildings which are more than one (1) story high or which contain more than one (1) basement, shall not contain a Size A garage unless the entire floor area occupied for garage purposes be equipped with an automatic sprinkler system. In ordinary masonry garages the floors must be double and tight and, if having a usable story below, must be at least three (3) inches thick. At least two (2) inches of the thickness of wood floors in ordinary masonry garages must be of tongued and grooved lumber, while the other one (1) inch must be of lapped or tongued and grooved lumber. The partitions in ordinary masonry garages may be constructed of single two by six (2x6) tongued and grooved lumber placed vertically; or horizontally on four by four (4x4) inch studs.

Section 935. A garage may be established in any one-story, fireproof, mill or ordinary masonry building not containing a place of public assembly, hospital or children's home, if the walls, partitions, floors and ceilings enclosing the garage are fireproof or are constructed as specified in Section 932 hereof, and contain no openings into other portions of the building. When the enclosing walls and partitions extend to the ground, the floor may be constructed as required for the remainder of the building, and if the walls extend to and fit tightly against the under side of the

roof or pass through the roof, the ceiling may be constructed as required for other portions of the building. Provided, however, that if the garage has a total floor area of not to exceed three thousand (3,000) square feet and is located in a one-story store building, warehouse, factory or workshop of ordinary masonry construction, containing no basement, plastered open stud partitions may be used to enclose the garage, if they extend from the ground to or through the roof or if the floor and ceiling are as fire resistive as an ordinary masonry partition.

Should the garage be equipped throughout with an automatic sprinkler system, fixed fireproof windows and fire doors between the garage and other portions of the building will be permitted.

Section 936. No garage shall be permitted in any building containing a place of refuge or assembly, except as follows:

A garage having a total floor area of not to exceed three thousand (3,000) square feet may be located in a hospital building, school building, undertaking establishment building, or in an office building containing an assembly hall, provided the motor vehicles kept in the hospitals, schools or undertaking establishments are essential to and used only in connection with such occupancies.

It is further required that a garage in any of the above mentioned buildings must be entirely enclosed by fireproof construction, must have all exterior openings fireproofed, must be equipped throughout with an automatic sprinkler system and must have no openings into other portions of the same building. All exterior door and window openings into the place of assembly, or into the corridor leading thereto, must be fireproof if within twenty-five (25) feet of any exterior garage door openings in the same building.

Section 937. Except as otherwise herein provided, no garage shall be located in any building which is partly used for any other purpose unless the space occupied by the garage is entirely separated from other parts of the building by fireproof construction equivalent to that required for stair and elevator enclosures and containing no openings into other portions of the building except door openings having two (2) independent fire doors on each, one of which must be self-closing but may be a Class "B" door; or unless the part of the building occupied by the garage is separated by partitions, floors and ceilings of four (4) inch solid wood mill construction other than laminated, or of six (6) inch laminated mill construction, either of which, unless forming the floor of the garage, must have metal lath or plasterboard, and plaster on the garage side. Provided, that when the garage is separated by the wood and plaster construction instead of fireproof, it shall be equipped throughout with automatic sprinklers and have all exterior openings fireproofed except those on street fronts and have no openings into any part of the building used for another purpose except that fire doors are permitted when the floor area of the garage is not in excess of five hundred and fifty (550) square feet.

Nothing in this Code shall be construed to prohibit the keeping of motor driven fire apparatus in buildings used solely as fire stations, police stations, or a combination of them, and having no separation between the garage and other portions of the building.

Section 940. No film exchange shall be located in any basement nor in any building which is

- (a) More than two (2) stories high.
- (b) Of frame construction.
- (c) Occupied in whole or in part as a place of assembly, habitation, refuge or detention, nor in which more than fifty (50) people not employed in a film exchange, congregate at any one time.

All film exchanges shall have all exterior openings fireproofed, except those on street fronts.

Section 941. All film not in use nor being worked upon shall be placed in metal shipping cases or in individual metal reel containers constructed without solder and having tightly fitting covers, and shall be kept in fireproof vaults constructed as hereinafter specified.

Fireproof film vaults shall contain not more than seven hundred fifty (750) cubic feet of space and shall be supported entirely by masonry from the ground up. The floor and ceiling of the vault shall be of reinforced concrete slabs not less than six (6) inches thick. The walls shall be of reinforced concrete not less than six (6) inches thick, unreinforced concrete not less than eight (8) inches thick, or brick not less than eight (8) inches thick, laid in cement mortar.

Each vault shall be provided with a vent constructed as required for the walls of the vault or shall have reinforced concrete walls not less than four (4) inches thick securely anchored to the ceiling slab. The vent must extend at least six (6) feet above the roof and shall terminate sixteen (16) feet from any combustible wall, non-fireproof opening or fire escape. The cross sectional area of the vent shall be not less than one and seven-eighths ($1\frac{7}{8}$) inches for every cubic foot of vault space.

A light wire screen not coarser than one-eighth ($\frac{1}{8}$) inch mesh shall be placed across each vent to prevent the ingress of fire and the egress of burning film. All racks for separating films shall be constructed entirely of fireproof or incombustible material. No shelves shall be permitted within any vault.

Each film vault shall be equipped with an automatic sprinkler system having one standard head for each sixty-two and one-half ($62\frac{1}{2}$) cubic feet of vault space. Between sprinkler heads, sheet metal baffle plates shall be provided and shall extend from the ceiling to not less than eight (8) inches below the heads.

All lights in vaults shall be vapor proof, incandescent electric lamps located on the ceiling and properly guarded and shall be controlled by a switch outside of the vault.

No vault shall be heated artificially.

No vault shall contain any openings other than the vent and one door, which latter shall be protected on each side of the wall by Class "A" fire doors, provided further, that the

inner door shall be of a sliding type and the outer a swinging door which must close into a two (2) inch rabbet at the bottom, as well as on the sides and top. The automatic closing device on both doors shall be so arranged that the door will be released by a fire, either inside or outside of the vault. The inner door shall be provided with a substantial guard to prevent films being placed against it. A film storage rack securely supported and having a clearance of two (2) inches from the door shall be considered equivalent to the above required guard. The outer door of the vault shall be provided with a self-latching device having substantial catches at three (3) points all simultaneously operated by the action of a master lever. All parts of such latching device shall be made of wrought strap iron not less than one and one-half ($1\frac{1}{2}$) inches by one-quarter ($\frac{1}{4}$) inch and when in closed position shall hold the door tightly fastened. Such latching device shall be provided with an attachment by which it may be operated manually from either the inside or outside of the vault.

Section 942. Every film exchange in which film is examined and repaired must be provided with a room for that purpose, which shall be known as the Examination Room. It shall have walls, floor and ceiling of fireproof or plastered mill construction and shall have its interior openings fireproofed and automatically closing.

Every Examination Room having a floor area of two hundred and fifty (250) square feet or more shall have two (2) easily accessible means of egress located as far apart as practicable.

There shall be provided in the ceiling of every Examination Room a vent having a cross-sectional area of at least one-fourth ($\frac{1}{4}$) square inch for every square foot of floor area and constructed of double No. 24 gauge galvanized sheet metal with one (1) inch of asbestos between the sheets. Examination Rooms shall be heated only by hot air, hot water or steam, and metal shields or screens shall be provided to prevent film from coming in contact with radiators or heated pipes. No hot air floor registers shall be used.

All extensions of electric wiring in Examination Rooms shall be made with conduit or armoured cable and the room shall be lighted only by incandescent lamps enclosed in vapor proof globes and properly guarded.

Motors for the operation of rewinds or for other purposes shall be of the fully enclosed non-sparking type and shall have no exposed live metal parts.

Examination Rooms shall be equipped with automatic sprinklers constructed as required for automatic sprinkling systems in this Code, except that there shall be one (1) head for every fifty (50) square feet of floor area.

Section 943. A room used for the packing or unpacking of film shall be known as a Shipping Room, which shall be constructed and equipped as required for Examination Room.

Section 944. Where a motion picture machine is used for projecting films for display or other purposes it shall be enclosed in a booth con-

structed in accordance with the requirements found elsewhere in this Code, and shall be equipped with automatic sprinklers as required for examination rooms.

Section 945. Every film exchange in which film is cleaned by the use of ether, alcohol or other inflammable liquids, shall be provided with a cleaning room for such purpose. It shall be constructed and equipped as required for examination rooms and in addition shall be provided with a mechanical ventilating system of sufficient capacity to keep the room free from inflammable or injurious vapors.

Section 950. Every dock, wharf or pier, unless of fireproof construction, must be provided with draft curtains not over one hundred (100) feet apart measured parallel to the main axis of the dock. They must be constructed of at least two (2) thicknesses of two (2) inch plank laid with broken joints or of equally fire resisting material, must fit tightly around all joists or beams and must extend from the under side of the floor to City datum if constructed over salt water and to the water level if constructed over fresh water.

Section 951. Except as otherwise provided, every waterfront building of frame construction shall have its entire exterior, exclusive of roof and window sash, covered with galvanized iron or asbestos cement shingles or sheets not thinner than one-fourth ($\frac{1}{4}$) inch, any of which may be nailed to one-inch shiplap, or it shall be covered with at least one thickness of thoroughly air or kiln dried two (2) by six (6) inch tongued and grooved flooring placed vertically on girts not smaller than four (4) inches in least dimension.

The roof must be thoroughly air or kiln dried tongued and grooved lumber not thinner than two (2) inches nor wider than six (6) inches, and must be covered with the roofing required for mill buildings; provided, however, that galvanized iron attached directly to steel or wood purlins may be used.

In waterfront buildings no posts shall be less than eight (8) inches in least dimension, no beam, joist, gird-

er, purlin or truss member less than six (6) inches, and no brace, girt or stud less than four (4) inches in least dimension.

Section 952. Every waterfront building, unless it be fireproof, shall be provided with fire walls not over five hundred feet apart and roof curtains not over one hundred (100) feet apart, measured parallel to the main axis of the building. The fire walls shall be constructed of two (2) thicknesses of two (2) inch tongued and grooved or shiplapped lumber not over six (6) inches wide and placed vertically with broken joints. They shall extend from the bottom of the draft curtain to at least three (3) feet above the roof.

The roof curtains shall fit tightly against the under side of the roof and shall extend to the bottom of the trusses. They shall be constructed as required for fire walls or of one thickness of tight one (1) by four (4) inch matched lumber with plaster board tightly fitted and securely nailed on one side.

Openings through fire walls and roof curtains shall be minimized in size and number and shall be protected with automatic fire doors.

Section 953. All waterfront buildings shall be equipped throughout with automatic sprinkler systems conforming to the specifications found elsewhere in this Code.

Section 954. If the superstructure of a building which is constructed on piles above the water conforms to all the provisions of this Code relating to an identical superstructure which is not over the water, it shall be exempt from the special provisions herein applying to waterfront buildings.

Section 955. Nothing in this Code shall be construed to prevent the erection of what are known as grain elevators, as usually and properly constructed, provided they are erected in isolated localities and under such reasonable requirements as the Superintendent of Buildings may prescribe, including location.

Nothing in this Code shall be construed to prevent the erection of coal pockets or coal elevators as usually and properly constructed under similar conditions, including location.

PART 10 MISCELLANEOUS PROVISIONS

Section 1001. Except in places of habitation, refuge, detention or assembly, temporary partitions of wood, glass, plasterboard, wall board, beaver board or a combination of same may be constructed in any building or any balcony therein, provided the aggregate length of such partitions or screens in any room does not exceed one-half ($\frac{1}{2}$) the sum of the lengths of all walls or partitions constructed as required for the class of building and enclosing said room. Provided, further, that in a place of assembly with a seating capacity of not more than five hundred (500), there may be constructed one-half ($\frac{1}{2}$) as much of the above specified temporary partitions as is permitted in stores, factories, etc.

If the space enclosed by such partitions or screens be covered, such covering shall be constructed as a ceiling and not as a floor, unless complying with the requirements for balconies.

Section 1002. When the space above or below a balcony is to be used for offices, or continuous occupancy by laborers of any class, there shall be not less than seven (7) feet six (6) inches of height in the clear above or below the balcony and such space shall be properly ventilated. When the space above or below a balcony is used for other purposes, the clear height shall not be less than six (6) feet six (6) inches.

No balcony shall be designed for a floor load of less than fifty (50) pounds per square foot.

In fireproof buildings balconies may, except as otherwise provided, be built of mill construction.

Balconies in mill, ordinary masonry or frame buildings shall be constructed in accordance with the requirements for floors in the building in which they are located except that the balcony posts and girders in mill buildings need not be more than six (6) inches in least dimension.

Section 1003. In the First Building District, no bay window shall project into any street or alley.

In other building districts, bay windows shall not project into any alley nor extend more than two (2) feet beyond the street line nor shall any such window projecting beyond the street line be less than twelve (12) feet above the established grade thereof.

Bay windows on fireproof or frame buildings shall be constructed as required for other parts of the building of which they are a part.

Bay windows on ordinary masonry and mill buildings shall have their walls, roofs and bottoms constructed as required for partitions in mill buildings with the additional provision that the entire exterior, exclusive of windows, window frames and casings shall be covered with sheet metal or other incombustible material. Such material shall extend under the casings to the openings. At each floor level a fireproof beam shall be placed across the opening left in the wall for the bay window, which beam shall be anchored at each end sufficiently to hold together the parts of the wall on each side of the window. The aggregate width of bay windows in any wall shall not exceed fifty (50) per cent. of the length of said wall, nor shall the length of wall between two bay windows be less than four (4) feet, no (0) inches.

Section 1004. Exterior balconies, other than fire escape balconies, and those on frame buildings, shall be constructed of iron, steel or masonry; shall not project into any alley; nor extend more than two (2) feet beyond the street line; nor be less than twelve (12) feet in clear above the established grade of any street above which they are placed.

Section 1005. No cornice, belt course, moulding or similar appendage shall project into an alley unless said projection shall at all points be at least fourteen (14) feet in clear above the established grade of said alley, in which case it may project a distance of not to exceed one (1) foot; provided, however, that cornice and belt course returns, not more than six (6) feet in length, may project into alleys the same distance as permitted for their projection into streets. No part of any cornice, belt course, moulding and similar projection which is less than eight (8) feet above the established grade shall extend over a street; provided that from eight (8) to fifteen (15) feet above said grade they may extend twelve (12) inches over a street; from fifteen to twenty (15 to 20) feet they may extend two (2) feet, while above

twenty (20) feet above grade the extension may be increased one (1) inch for each three (3) feet of added height until a five (5) feet extension is reached, which shall be maximum.

Except on frame buildings, one (1) story buildings and buildings occupied exclusively as residences, all cornices, hollow belt courses, hollow mouldings and similar projections shall be constructed of incombustible material, and shall be securely attached to the masonry walls by metal supports where supports are necessary.

Section 1006. Dormer windows shall have their walls and roofs constructed and covered as required for the roof of the building of which they are a part. Provided further that the walls may be covered with cement plaster.

Section 1007. Penthouses on fireproof buildings shall be of fireproof construction; on mill and ordinary masonry buildings penthouse walls shall be constructed as required for mill partitions except that they shall not be less than four (4) inches thick and shall be covered on the exterior with lock jointed sheet metal not lighter than No. 24 Gage, nailed over asbestos paper not thinner than one-sixteenth (1/16) or over one-quarter (1/4) inch plaster-board, or said penthouses shall be covered with cement plaster, one-quarter (1/4) inch asbestos cement board or equivalent. The roof shall be constructed and covered as required for mill buildings or be of the same construction as the walls.

Towers and spires on fireproof buildings shall be of fireproof construction; on mill buildings they shall be constructed as required for walls of penthouses; on ordinary masonry buildings they shall be constructed as required for mill buildings, or be constructed with a frame work of timbers not smaller than six (6) inches in least dimension covered with two by six (2x6) inch tongued and grooved lumber, the surface of which shall be covered as required for pent-houses.

On mill or ordinary masonry buildings the total cross-sectional area at the bases of all towers or spires constructed above any division of the buildings shall not exceed four hundred (400) square feet.

Section 1008. Towers or spires on frame buildings may be of frame construction, provided the total cross-sectional area at the bases of the towers on any division of the building shall not exceed two hundred and fifty (250) square feet.

Section 1009. Skylights except in residences, frame buildings and over

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theater stages shall be constructed with metal sash and frames, glazed with wire glass.

Section 1010. Water tanks placed above the roof of fireproof, mill or ordinary masonry buildings shall be supported by steel or masonry extending from the surface of the roof to the under side of the tank except that the chime beams may be of creosoted wood. Below the roof, in buildings other than fireproof, the load may be carried on mill constructed wood framework.

Section 1011. Every window constructed so that it is usual or necessary for a person to stand on the outside sill or ledge to clean the window, and having its sill more than twelve (12) feet above the ground, shall have a sill at least six (6) inches wide with a slope not greater than one (1) to six (6), and shall have securely fastened at each side of the window a safety anchorage to which may be fastened a window cleaner's safety belt. Such anchorage shall be of good quality brass or bronze with a high tensile strength and when placed in the wall shall be capable of supporting a vertically acting static load of one thousand (1000) pounds.

The anchorage bolt shall in no case be smaller than one-half ($\frac{1}{2}$) inch diameter, shall have a head or nut on the inner end and shall be imbedded at least eight (8) inches in the solid masonry or extend through the wall or mullion. Anchorage bolts need not be placed on all wood mullions supporting the sash provided

the bolts are located not farther apart than six (6) feet.

Section 1012. All buildings now or hereafter erected, shall be provided with gutters and downspouts connected to sewer, street gutter, or effective dry well, when necessary to protect adjacent property from damage or to prevent water from flowing across sidewalks; provided, however, that no roof water shall be permitted to run into any street gutter when the sidewalk under which the water would necessarily be conducted is of concrete extending from the curb to the property line.

Section 1013. Fences between lots or within eighteen (18) inches of the party line shall in no case be more than six (6) feet high above the grade of the highest lot, unless constructed of lattice with openings which are at least as wide as the lattice strips.

Section 1014. It shall be unlawful for any person to erect, maintain, use or occupy any tent, covered wagon or other vehicle within the First or Second Building District, or to use or occupy same within fifteen (15) feet of any building not owned by the same owner or occupied by the same tenant in the Third or Fourth Building District, or to use or occupy same for any purpose other than lodging.

Section 1016. The Board of Public Works is hereby authorized and empowered, upon the application being made in writing therefor, stating the purpose for which said building or structure is to be used, and accompanied by plans and specifications

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showing in detail the construction of such building or structure, and the means of exit therefrom, and of sanitation and fire protection to be provided therein, to authorize the Superintendent of Buildings to issue permits for the erection, use and occupancy of temporary wooden buildings, tents and other structures not more than one (1) story in height, to be used for the purpose of holding religious services therein, convention halls, carnivals, fair or exposition purposes and other public assemblages, or for stables, workshops, boarding houses or sleeping apartments used in connection with the grading of streets or other public works; to specify in detail how such building or other structure shall be erected, used and occupied; to provide that such building or structure shall be demolished and all material therein contained or used in connection therewith, and all debris resulting from such use, shall be removed from the premises where such building or structure is located within a time specified in such permit, which time shall be not more than six (6) months from the granting of such permit; and to provide and specify the means of fire protection to be installed and maintained in connection with such building or structure, and the means for securing and maintaining sanitary conditions in connection therewith.

In the event that such permit for the erection of such temporary building or structure shall be authorized by the Board of Public Works, the applicant therefor shall file with the City Comptroller a bond to the City of Seattle with good and sufficient sureties, to be approved by the Mayor and Comptroller, in a penal sum to be fixed by the Board of Public Works, and conditioned that he will, on or before the date set in such permit for the demolition and removal of such building or structure, demolish such building or structure and remove from the premises where the same is erected all material therein contained and used in connection therewith, and all debris resulting from the use thereof, place the said premises in a sanitary condition, and restore them, as near as may be, to the condition in which they existed prior to the erection of such building or structure; and conditioned further, that in case the principal on said bond shall fail, refuse or neglect to comply with the conditions hereof and of the permit for the issuance of which such bond is executed, the City of Seattle, by its duly authorized officers, may enter upon the premises and demolish said building or structure and remove the same and all material used in connection therewith, and that the cost and expense thereof may be recovered from the principal and sureties on said bond.

Nothing in this section contained shall be construed as requiring or directing the Board of Public Works to issue any permit for the erection of any temporary building or structure as in this Section provided, but the Board of Public Works may in all cases refuse to issue or grant such permit.

Section 1017. In all buildings having more than two (2) stories whether above or below the street grade, and

in which permanent floors are not constructed at the time the frame or walls are constructed, not more than one (1) story of the frame or wall shall be constructed without constructing a temporary floor of plank laid close, for the protection of workmen or others above, below or on such temporary floors, and such temporary floors shall be constructed as the building progresses at each alternate floor, and no permanent floor masonry shall be constructed unless there be the permanent or a temporary floor in the story immediately below it.

Section 1018. During the construction or alteration of all buildings more than 30'0" in height, all stairways, elevator openings, flues and all other openings in the floors and roofs, shall be covered or protected by railings or wire netting at least 4'0" in height at all times, except when such openings are being used for hoisting or lowering material.

Section 1019. During the construction of all buildings over three (3) stories in height, temporary plank stairs of not less than five (5) inch run and not more than twelve (12) inch rise, protected with hand rails, shall be constructed and kept in good repair and clear from material until the permanent stairs are constructed. All temporary stairways shall be well lighted either by natural or artificial light during working hours.

Section 1021. During the construction, alteration or demolition of any building or part of a building which shall extend 2 stories or more above any other portion of such building or any adjoining building, the roof of such other portion or of such adjoining building and all skylights therein, shall be protected by covering said roof with planks or boards laid close to prevent injury to the roof covering, and by suspending over any skylights, on stout timbers properly secured a stout wire netting with a mesh of not over $\frac{1}{2}$ inch, which netting shall be not less than 1'0" above the glass in any such skylight, and shall be stretched taut and securely fastened to the supports.

Section 1022. All scaffolds and sidewalk bridges erected for the protection of workmen or the public or for use in the erection, repair, alteration or demolition of buildings, shall be well and safely constructed and supported, and of sufficient width to secure the safety of persons walking thereon, or passing under or by the same, and to prevent the falling thereof or of any material that may be used, placed or deposited thereon.

When scaffolds are 45'0" or more in height, whether pole or thrust-out scaffolds, there shall be erected on the outer edge and ends an enclosure of wire netting of not more than 2-inch mesh or of boards not less than $\frac{3}{4}$ inch thick, placed not over $1\frac{1}{2}$ inch apart, well secured to uprights not less than 2 inches x 4 inches in dimensions, fastened to planks or timbers, and resting on putlogs or thrust-outs. Such enclosures shall be carried up at least 5'0" in advance over the level on which the workmen are working. The thrust-outs shall be strong enough to sustain a distributed load of 30 pounds per square foot of staging surface, and be made

stronger as required if material is to be left thereon.

The flooring on thrust-outs and putlogs shall be tightly constructed with plank, and the floor and enclosure shall not be removed until a like floor and enclosure is in position on the story above. If another story or other stories are being raised above any scaffold while the same is being used, such scaffold shall be covered for the full width above the workmen with well secured plank.

Section 1023. All sheds, enclosures, scaffolds, staging, ropes, blocks, tackle, swinging scaffolds, temporary floors and stairs, and other building appliances erected or used during the construction, alteration, painting or repair of any building, shall be of good quality, adapted to the purpose for which used, erected and maintained in a workmanlike manner and subject to inspection and approval by the Superintendent of Buildings.

All scaffolding or staging when in use twenty (20) feet or more above the ground or floor and which is swung or suspended from an overhead support, shall have a safety rail of wood or other material of sufficient strength to amply and fully protect all persons who may be working on such scaffolding or staging, such rail to rise at least thirty-six (36) inches above the floor or floors or main portions of such scaffolding or staging and extending along the entire length of the outside, and the ends thereof and properly and safely attached thereto, and such scaffolding or staging shall be fastened so as to prevent the same from swaying from the building or structure or place of work where such scaffolding or staging is being used. Any and all parts of such scaffolding or staging shall be of sufficient strength to support, bear or withstand any weight of persons, tools, appliances or materials that may be placed thereon or that are to be supported thereby while such scaffolding or staging is being used for any of the purposes thereof.

In addition to the duties imposed upon an employer by any law regulating or relating to scaffolding or staging, it shall be the duty of such employer who uses or permits the use of scaffolding or staging as defined herein in connection with the construction, alteration, repair, painting, cleaning or the doing of any kind of work, upon any building or structure, or other thing or place of work, to furnish safety lines to tie all hooks

and hangers back on the roof of such building or structure, and to provide safety lines hanging from the roof, securely tied thereto, and one such line to be provided between each pair of hangers or falls and near the ends of such scaffolding or staging. The platform of every such scaffolding or staging shall be not less than two (2) feet wide and shall extend the entire length of the same. All rope used in the operation of every such scaffolding or staging shall be not less than three-fourths ($\frac{3}{4}$) of an inch in diameter. All such scaffolding or staging shall be equipped with adequate block and tackle of the best material obtainable.

Section 1025. Alterations and repairs to any extent may be made to any building, providing the resulting building after such alterations and repairs complies with the requirements of this Code for new buildings.

Any building, whose height and use conform to the requirements of this Code for the district in which the building is located, may be altered or repaired with the kinds of material and construction required by this Code for said building and district.

No building whose construction is of a lower class than is herein required for a new building in the same location shall be altered by having an addition added thereto, unless the safety of life and property are thereby increased.

Nothing in this Code shall be construed to prevent the use of materials and construction of a higher class than is called for in the sections regulating alterations and repairs.

Section 1026. Except as herein otherwise provided, no mill building shall be altered or repaired unless the alterations and repairs are made in accordance with all the Building Code provisions pertaining to mill buildings.

Section 1027. Except as herein otherwise provided, no ordinary masonry building, whose height or use does not conform to the requirements of this Code, shall be altered or repaired, unless the alterations and repairs are made in accordance with all the Building Code provisions pertaining to mill buildings; provided, however, that mill construction bearing partitions may be used in lieu of posts and girders and that the height of the building shall not be increased either in number of stories or in feet.

Section 1028. Except as herein

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otherwise provided, no frame building in the Third or Fourth Building District, whose height or use does not conform to the requirements of this Code, shall be altered or repaired unless the alterations and repairs are made in accordance with all the Building Code provisions pertaining to ordinary masonry buildings, nor shall any frame building in the First or Second Building District be altered or repaired unless said alterations and repairs are made in accordance with all the Building Code provisions pertaining to mill buildings, except that mill constructed bearing partitions may be used in lieu of posts and girders; provided, however, that the height shall not be increased either in number of stories or in feet.

No permit shall be issued to alter or repair any frame building in the First or Second Building District if the cost of making the alterations and repairs, plus the total cost of all alterations and repairs made during the ten (10) consecutive preceding years, exceeds fifty per cent. (50%) of the building's value after deducting therefrom the cost of all alterations and repairs made during the ten (10) preceding years.

Section 1029. Alterations and repairs rendered necessary by condemnation and regrading of streets may be made to any building with the kinds of materials and construction originally used therein.

Whenever any portion of a lot or lots is taken for public use, any building located, in whole or in part, on said portion may be moved to that part of the premises not taken for public use, if there be sufficient room.

Whenever any street is regraded in such manner as to necessitate the adjustment of an existing building to the new grade, such building may be raised, lowered, or have stories added above or below the same, provided such additional stories do not increase the height of such building or the number of stories beyond that allowed by this Code; and, provided further, that in the First and Second Building Districts any such additional lower story or stories shall have masonry walls, as required for new buildings in such districts; and provided further, that frame buildings in the First, second and Third Building Districts, in case of condemnation or regrade, may be moved elsewhere into locations where such buildings are permitted.

Section 1030. Whenever any building is damaged by fire, the Superintendent of Buildings is authorized to estimate the extent of said damage, which estimate shall be used as a

basis for the issuance of a permit to repair or reconstruct said building.

If a building is damaged by fire or the act of God in excess of fifty per cent. (50%), and less than seventy-five per cent. (75%), of the value of the building, the damaged portion shall not be reconstructed except in accordance with the requirements of this Code for new buildings. In the remaining portion where reconstruction is not necessary, repairs may be made in accordance with the provisions of this Code governing alterations and repairs.

Where fire or the act of God causes damage to a building amounting to less than fifty per cent. (50%) of the value of the building, the damaged portion may be reconstructed with the kinds of materials and construction originally used in the building.

If a building is damaged by fire or the act of God in excess of seventy-five per cent. (75%) of the value of the building, the building shall either be demolished or reconstructed in accordance with the requirements of this Code.

Section 1050. Every billposter shall pay an annual license fee of two hundred fifty (\$250.00) dollars and one (1) per cent. of the gross income derived from his billposting business, which one (1) per cent. of gross income shall be determined quarterly for the quarters ending March 31st, June 30th, September 30th and December 31st, and shall be payable within fifteen (15) days after the termination of each such quarter. At the end of each such quarter every billposter shall immediately file with the City Treasurer a sworn statement setting forth the gross receipts derived from the business of such billposter for such quarter.

The books of every billposter shall be open to inspection of the license inspector of the City at all times for the purpose of determining the correctness of any statement as to gross receipts.

The license herein provided for shall be issued by the City Comptroller and ex-officio City Clerk on the presentation to him of the receipt of the City Treasurer showing payment of the license fee.

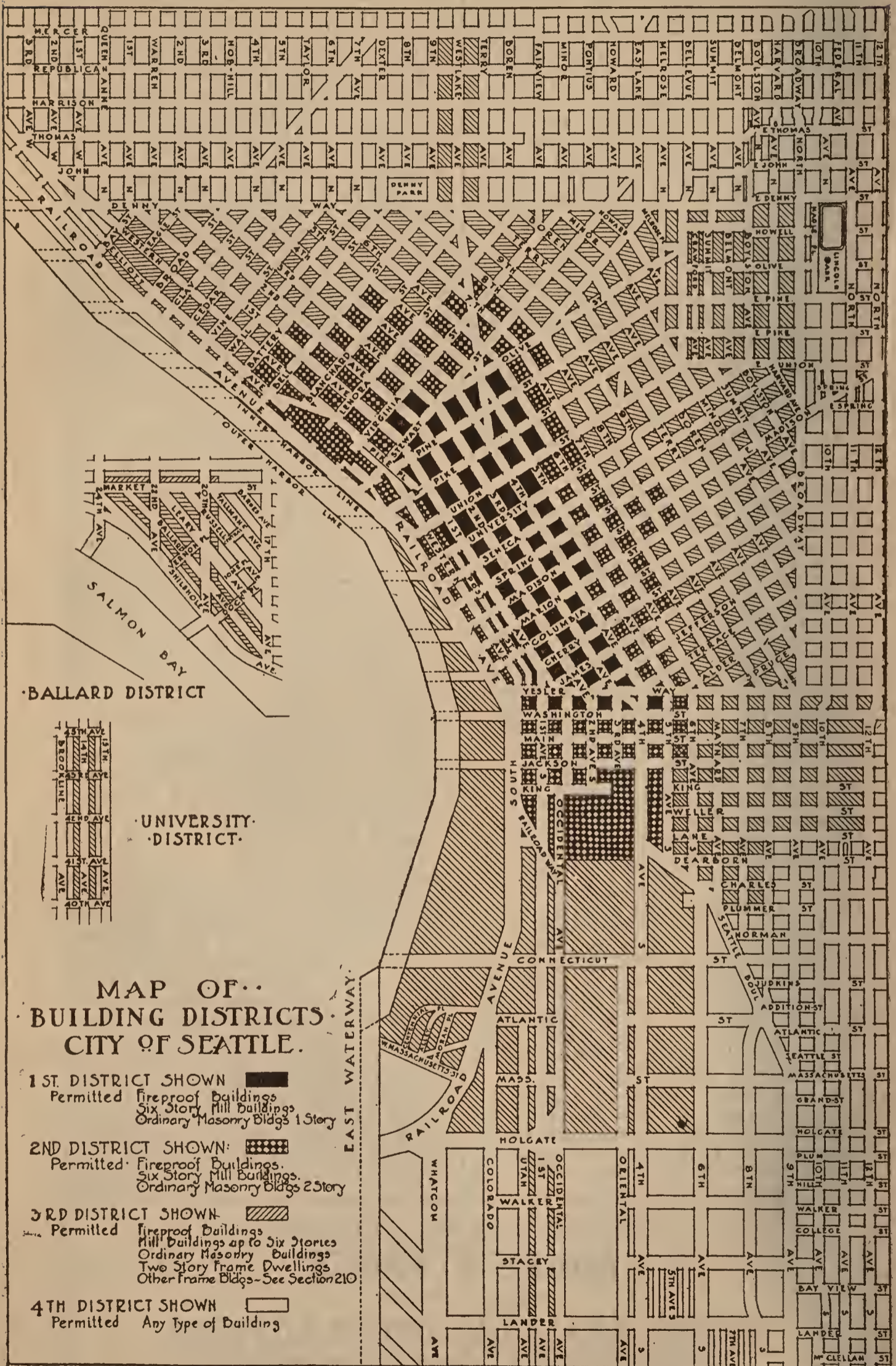
The above provisions relating to license fees shall not apply to the painting or affixing of advertisements on the walls of permanent buildings.

Section 1051. Every person who owns a billboard shall keep on file with the City Comptroller, a surety company bond, approved as to surety by the Mayor and City Comptroller, and as to form by the Corporation Counsel; the amount of which bond shall equal a total of one thousand

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(\$1,000.00) dollars for each billboard owned by him, except that no bond shall be required hereunder, in excess of ten thousand (\$10,000.00) dollars; such bond to remain in full force and effect during the time said billboard is maintained as such; such bond to be conditioned that such person shall faithfully comply with all provisions of this ordinance with respect to the construction, alteration, location and safety of billboards erected, constructed or maintained by such person, and conditioned further to indemnify and keep the City of Seattle harmless from any and all claims, damages, losses, actions, suits or judgments which may be presented, sustained, brought or secured against the City or any of its officials on account of the construction, erection or maintenance, alteration or removal of any billboard, or by reason of any accidents resulting therefrom.

No bond shall be required for a billboard the solid portion of whose advertising surface contains less than forty-eight (48) square feet, or for a billboard having its surface placed against the wall of a building.

Section 1052. Every billposter shall cause his name to plainly appear at all times on every structure, or portion thereof, upon which he places advertisements.

Section 1053. All billboards shall be constructed so as to withstand a wind pressure of thirty (30) pounds per square foot, without exceeding the maximum stresses specified in this Code.

Billboards may be constructed and maintained in any Building District, but shall be built and maintained so as to withstand a wind pressure of thirty pounds per square foot, without exceeding the maximum stresses specified in this Code, and in accordance with the provisions hereinafter set forth.

Billboards fastened to masonry walls of a building shall be attached thereto with bolts of ample strength extending not less than four (4) inches into the masonry. The fastening of billboards to wood blocks set in the masonry will not be permitted.

All billboards in the First, Second or Third Building Districts, having a solid advertising surface of an area in excess of forty-eight (48) square feet, shall be faced with metal.

Section 1054. In the First, Second or Third Building Districts, any billboard located on the roof of a building shall be constructed entirely of metal, except the following which may be of wood:

The sills which are laid on the roof and to which the metal supports are attached; the horizontal members to which is fastened the sheet metal on which advertisements are pasted or painted; any medallions placed on the advertising surface; a walk in front of the advertising surface, if not more than two (2) feet wide and constructed of two (2) inch plank.

In the Fourth Building District, all billboards located above the roof of a building more than one story high and having masonry walls, shall be faced with metal.

Section 1055. A vertical dimension of a billboard located on the ground and having a solid face, shall not exceed fifteen (15) feet; nor shall the height above the ground exceed twen-

ty (20) feet except where the ground beneath the billboard is below the sidewalk grade, in which case the billboard shall not be higher than twenty (20) feet above the sidewalk in front of the billboard.

Billboards located on the ground shall have an open space of at least eighteen (18) inches between the lower edge thereof and the ground. This space may be occupied by lattice work, provided that the open spaces in said lattice are at least equal in width to the width of the members of which the lattice is constructed.

Section 1056. No billboard, other than an electric sign, shall, if located above the roof of a building, have an advertising surface whose vertical dimension exceeds twenty (20) feet, nor shall it be higher than twenty-five (25) feet above the roof. Electric signs located above the roof of a building shall not be higher than fifty (50) feet above said roof.

The bents supporting the face of a billboard shall, if located above the roof of a building, be at least six (6) feet apart and the bottom of the face shall be at least five (5) feet above the roof.

The advertising surface of such a billboard must be at least four (4) feet from any street or alley line.

Section 1057. Billboards placed on walls or roofs of buildings shall be located so as not to interfere with the use of any fire escape or stand-pipe or obstruct necessary windows or interfere with egress from the building.

No billboard placed against the walls of a building shall project into any street or alley a greater distance than is permitted for appendages on buildings.

Section 1058. Any billboard which may be or become unsafe or defective, and any billboard which may be hereafter erected, altered or reconstructed contrary to the requirements of this ordinance, shall be removed or made to conform to the terms and requirements of this ordinance by the owner thereof or by the owner of the ground upon which the same is built, upon receipt of notice so to do from the Superintendent of Buildings. It shall be the duty of the Superintendent of Buildings to serve notice on any person maintaining any billboard not in conformity with the provisions of this ordinance, which said notice shall require the immediate removal of such billboard or alteration thereof to conform to the requirements of this ordinance.

Section 1059. It shall be unlawful for any person to erect, construct or maintain any billboard facing upon the street line of any public street in any block in which more than two-thirds ($\frac{2}{3}$) of all the buildings in said block and facing upon said street line are occupied exclusively for residential purposes, without first obtaining the written consent of the owners of a majority of the frontage of said street line within a distance of two hundred (200) feet of such billboards, and filing said written consent with the Superintendent of Buildings: Provided, however, if such buildings used exclusively for residential purposes are less than three in number, or are more than two hundred (200) feet distant from such bill-

board, then it shall not be necessary to obtain such written consent.

Section 1096. Any person who shall violate or fail to comply with any of the provisions of this ordinance or of any lawful order or requirement of the Superintendent of Buildings made in accordance with the provisions hereof, shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine in any sum not exceeding One Hundred (\$100) Dollars, or by imprisonment in the city jail for a term not exceeding thirty (30) days, or by both such fine and imprisonment, and each day that any person shall continue to violate or fail to comply with any of the provisions

of this ordinance or of such order or requirement shall be considered a separate offense.

Section 1097. In addition to the penalties provided in the preceding section for violations of this ordinance, any building or structure, or part thereof erected, altered, repaired, removed, arranged, equipped, used or occupied in violation of any of the provisions of this ordinance, shall be deemed and is hereby declared to be a nuisance and such nuisance may be abated in the maner provided by law.

Section 1098. All ordinances or parts thereof in conflict with the provisions of this ordinance are repealed.

APPENDIX

If you are interested in improvement work to be undertaken by the City, County, School Board, Park Commission, State Highway Commission, Federal government, Army and Navy, fort, yard or dock improvements, Forest Reserve, Treasury and Lighthouse department, various counties and municipalities throughout Washington, Oregon, Idaho, Montana, British Columbia and Alaska, you will find the information you want in the

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**RULINGS OF
SUPERINTENDENT of BUILDINGS
AND BOARD OF APPEALS.**

Ruling No. 1 (Supt. of Buildings.)

—In fireproof buildings not over three stories high, designed for future stories and in which the ceiling of the top story is the fireproof slab for the next future story, a temporary roof of wood sheathing on wood forms is permitted, provided all shafts extending through the attic be enclosed with fireproof material and the attic be divided with double shiplap partitions as elsewhere provided for attics in non-fireproof buildings.

Ruling No. 2 (Supt. of Buildings.)

—Waterproof paper may be omitted in plastered mill buildings.

Ruling No. 3 (Supt. of Buildings.)

—Cleats, quarter-rounds or metal flashings are required around posts passing through floors; also along the top and down the ends of wood partitions and at similar points where shrinkage will open up cracks through which fire could otherwise pass.

Ruling No. 4 (Supt. of Bldgs.)

—As an alternate to that construction required by the preceding paragraph and by Section 240 for the roofs and top story ceilings the following construction may be used: The ceiling of the top floor may be constructed of joists not less than 6" thick, girders not less than 8" thick and solid flooring of matched planks not less than 2 $\frac{5}{8}$ " thick or of solid 2x4 construction; in either case plastered on the under side. Over this ceiling a roof may be constructed supported upon furring not less than 2" in least dimension and covered with roof sheathing of matched planks not less than 1 $\frac{5}{8}$ " thick. The roofing must be tar and gravel or other approved incombustible roofing, including approved prepared roofings. All light, vent and other shafts extending up through this attic space must be surrounded with the same construction as the ceiling. Such attic spaces must be divided by double shiplap partitions into compartments as required elsewhere in the ordinance for attic divisions.

Ruling No. 5 (Supt. of Bldgs.)

—Brick veneer on frame walls must be anchored every seventh course or less with galvanized crimped metal or wire ties spaces not over 24" centers. Spikes are not approved as ties.

Ruling No. 6 (Supt. of Buildings.)

—Bolts or screws used to fasten fire escapes either to frame or masonry walls must be galvanized or painted before installation.

Ruling No. 7 (Board of Appeals.)

—At a session of the Board of Appeals held October 14, 1913, it was resolved that Section 866 of the Building Code should be construed as meaning wood lath and plaster with sufficient firestops.

Ruling No. 8 (Supt. of Bldgs.)

—The following roofing specifications are hereby approved under the authority invested in the Superintendent of Buildings by Sections 240 and

261 of the Building Code as the **minimum** that may be used on any building required by ordinance to be a fireproof mill or ordinary masonry construction:

Specification No. 1—

- (a) A dry sheet.
- (b) 4 plies of 14-lb. felt laid shingle fashion and mopped solidly together so that in no place shall layers of felt be in contact.
- (c) A coating of hot pitch spread over the entire surface into which shall be imbedded at least 400 lbs. of roofing gravel per square.

Specification No. 2—

- (a) A 2-ply prepared asbestos roofing weighing not less than 40 lbs. per square.
- (b) 2 plies of 14-lb. asbestos felt mopped solidly to the 2-ply roofing and to each other, so that in no place will layers of felt be in contact.
- (c) A coating of roofing pitch mopped over the entire surface.

Specification No. 3—

- (a) A dry sheet.
- (b) 3 plies of 14-lb. felt laid shingle fashion and mopped solidly so that in no place will the felts be in contact.
- (c) A coating of roofing pitch and a 3-lb. prepared roofing weighing not less than 50 lbs. per square. This shall be imbedded in the hot pitch.

Materials: The dry sheet shall be of good quality, rosin-sized sheathing, weighing not less than 5 lbs. per square. The roofing felts, whether made of asbestos or rags, shall be of good quality and weigh not less than 14 lbs. per square. The roofing pitch shall be of good quality. The gravel shall be washed clean and vary in size from $\frac{1}{8}$ " to $\frac{1}{2}$ " in diameter.

Nothing in this ruling shall be construed to prevent the use of other roofing construction allowed by the Building Code.

MISCELLANEOUS ORDINANCE RELATING TO BUILDING OPERATIONS, NUMBER OF BUILDINGS ORDINANCE NO. 4635, AS AMENDED.

ORDINANCE NO. 4635

Section 3. The owner or occupant of any building or premises fronting upon any way, avenue, street, drive, place or square shall, upon receiving three (3) days' notice from the Superintendent of Buildings, place a correct number of such building or premises upon or over the doorway or entrance of any such building or premises which does not conform to the provisions of this ordinance the owner or occupant thereof shall forthwith remove and correct such number.

It shall be the duty of the Superintendent of Buildings to give the notice herein required whenever any building or premises within the city shall be found which is not numbered in accordance with the provisions of this ordinance.

SIZE OF ROOMS, OTHER THAN SLEEPING ROOMS, ORDINANCE NO. 15957, SECTION 43.

Ordinance 15957, Sec. 43. It shall be unlawful for any person to use or permit the use of any room for the purposes hereinafter designated, unless such room shall contain the amount of cubic feet of air space and of square feet of floor space for each person occupying said room: School room, for adults, 350 cubic feet and 20 square feet; for children, 200 cubic feet and 15 square feet; hospitals, adults, 1,000 cubic feet and 75 square feet; children, 600 cubic feet and 50 square feet; offices, workshops and factories, day workers, 300 cubic feet and 25 square feet; night workers, 480 cubic feet and 40 square feet; living apartments or dwelling houses, 600 cubic feet, outside of closets and bath rooms, for each individual occupying the apartment or dwelling.

PLANS TO BE APPROVED BY THE DEPARTMENT BEFORE BUILDING PERMITS ISSUED, ORDINANCE NO. 37715.

Section 1. That before any permit shall be issued for the construction, alteration or repair of any building in the City of Seattle application shall be made in writing on forms provided for that purpose to the Superintendent of Buildings of the City of Seattle, which application shall be signed by the owner or lessee of the premises, or by an architect or other person authorized to represent the owner or lessee. With every such application for a permit there shall be filed in duplicate such blue printed, or other printed drawing or print, or typewritten specifications as will fully and definitely describe the extent and nature of the work for which a permit is desired. An application accompanied by drawings which are in the judgment of the Superintendent of Buildings incomplete, indefinite unintelligible or for work not in compliance with the provisions of any ordinance of the City of Seattle with regard to the construction, alteration or repairs of buildings shall be rejected. As soon as said plans have been submitted to the building department of the city said department shall examine the same and ascertain whether the construction, alteration or repairs provided in said plans comply with the various ordinances of the City of Seattle relating to such construction, alteration or repairs. The building department shall, after said plans are submitted to it, forthwith notify the Department of Health and Sanitation of the city, the Fire Marshal of the city and the Street and Sewer Department of the city, that said plans have been submitted to the Building Department by the contractor or owner. It shall be the duty of the Department of Health and Sanitation, the Fire Marshal and the Street and Sewer Department to forthwith examine said plans and immediately indicate to the Building Department any changes which it is necessary to make upon said plans in order to comply with any ordinance of the City of Seattle relating to the alteration, construction or repairs of buildings. It shall be the duty of the Building Department if any changes are necessary in order

to make said plans comply with any ordinances of the City of Seattle to indicate such changes upon said plans and when such changes are made, or if no changes are necessary upon the original plan, it shall thereupon be the duty of the Building Department to issue a permit to the owner, architect or contractor authorizing the construction, alteration or repair provided for in said plans.

LOCATION WHERE UNDERTAKING ESTABLISHMENTS ARE PERMITTED, ORDINANCE NO. 38519 (AS AMENDED).

ORDINANCE NO. 38519.

Section 1. It shall be lawful to carry on the business of undertaker, to construct, maintain, establish and operate undertaking establishments, morgues, public, community or association mausoleums and crematories for the disposition of the bodies of the dead at any place or location within the districts bounded and described as follows:

First: Beginning at a point 120 feet easterly from the intersection of the center line of King Street with the center line of Rainier Avenue; thence northwesterly parallel with the easterly marginal line of Rainier Avenue and 120 feet distant therefrom to the center line of Jackson Street; thence north parallel with the easterly marginal line of Fourteenth Avenue and distant 120 feet therefrom to the center line of Jefferson Street to a point 120 feet east of the easterly marginal line of Twelfth Avenue; thence north along a line parallel to and distant 120 feet east of the easterly marginal line of Twelfth Avenue to a point 120 feet north of the northerly marginal line of East Pike Street; thence continuing northerly a distance of 120 feet easterly from the easterly marginal line of Twelfth Avenue to the center line of East Howell Street; thence west along the center line of East Howell Street to the center line of Eleventh Avenue; thence north along the center line of Eleventh Avenue to Denny Way; thence west and westerly along the center line of Denny Way to a point 120 feet west of the westerly marginal line of Broadway; thence south parallel to the westerly marginal line of Broadway and distant 120 feet therefrom to a point 120 feet north of the northerly marginal line of Pine Street; and thence west parallel to the northerly marginal line of Pine Street and distant 120 feet therefrom to a point 120 feet west of the westerly marginal line of Bellevue Avenue; thence north parallel to the westerly marginal line of Bellevue Avenue and distant 120 feet therefrom to the center line of Denny Way; thence west and westerly along the center line of Denny Way to the center line of Eastlake Avenue; thence north along the center line of Eastlake Avenue to Valley Street; thence west along the center line of Valley Street to the center line of Westlake Avenue; thence south along the center line of Westlake Avenue to Denny Way; thence west along the center line of Denny Way to the shore of Elliott Bay; thence southeasterly along the shore of Elliott Bay to the center line of King Street extended westerly,

thence east along the center line of King Street to the place of beginning, excepting from said district the territory bounded and described as follows: beginning at a point 240 feet west from the westerly marginal line of Broadway and 150 feet south of the southerly marginal line of Pike Street; thence west parallel to Pike Street a distance of 150 feet therefrom to the center line of Hubbell Way; thence southerly along the center line of Hubbell Way to the center line of Union Street; thence south parallel to the easterly marginal line of Eighth Avenue; thence south parallel to the easterly marginal line of Eighth Avenue and distant 120 feet therefrom to a point 120 feet north of Yesler Way; thence easterly parallel to the northerly margin of Yesler Way and distant 120 feet therefrom to a point 120 feet west of the westerly marginal line of Broadway; thence northerly, parallel to the westerly marginal line of Broadway and distant 120 feet therefrom to the southerly marginal line of Terrace Street; thence easterly along the southerly marginal line of Terrace Street to the easterly marginal line of Broadway; thence northerly along the easterly marginal line of Broadway to a point 150 feet south of the southerly marginal line of Pike street; thence westerly parallel to and 150 feet south of the southerly marginal line of Pike Street to the place of beginning.

Fourth: On Fourteenth Avenue Northeast, and for a distance of 120 feet from the marginal lines thereof, from the center line of East Thirtieth Street to the center line of East Forty-seventh Street.

Fifth: On Rainier Avenue, and for a distance of 120 feet from the marginal lines thereof.

Sixth: On California Avenue, and for a distance of 120 feet from the marginal lines thereof, from the center line of West Walker Street to the center line of West Dawson Street.

Seventh: On West Andover Street, and for a distance of 120 feet from the marginal lines thereof, from the center line of Twenty-sixth Avenue Southwest to the center line of Twenty-eighth Avenue Southwest.

Eighth: Duwamish Avenue, and for a distance of 120 feet from the marginal lines thereof, from the center line of Howard Street to the center line of Horton Street.

Ninth: Ballard Avenue, and for a distance of 120 feet from the marginal lines thereof, from the center line of Market Street to the center line of West Forty-seventh Street.

Tenth: West Fifty-sixth Street, and for a distance of 120 feet from the marginal lines thereof, from the center line of Twenty-fourth Avenue Northwest to the center line of Twenty-second Avenue Northwest.

Eleventh: Market Street, and for a distance of 120 feet from the marginal lines thereof, from the center line of Twenty-fourth Avenue Northwest to the center line of Fourteenth Avenue Northwest.

Twelfth: West Forty-seventh Street and for a distance of 120 feet from the marginal lines thereof, from the center line of Seventeenth Avenue

Northwest to the center line of Fourteenth Avenue Northwest.

Thirteenth: Fremont Avenue, and for a distance of 120 feet from the marginal lines thereof, from the center line of Kilbourne Street to the center line of Etruria Street, and on Fremont Avenue, and for a distance of 162 feet from the marginal lines thereof, from the center line of Etruria Street to the center line of Florantia Street.

Fourteenth: On West Kilbourne Street, and for a distance of 120 feet from the marginal lines thereof, from the center line of Fremont Avenue to the center line of Greenwood Avenue.

Fifteenth: That tract of land known as the King County Poor Farm, bounded by Corson Street, Myrtle Street and Monroe Street produced, and the Duwamish River, provided, that no undertaking establishment, morgue, mausoleum or crematory shall be located less than three hundred (300) feet west of Corson Street.

Seventeenth: Twenty-second Avenue South, and for a distance of 120 feet from the marginal lines thereof, from Jackson Street to Main Street.

ELEVATORS MUST BE INSPECTED

ORDINANCE NO. 44903

Section 1. It shall be unlawful for the owner of any freight or passenger elevator in the City of Seattle to maintain or operate the same in any building, structure or public place in such city unless such elevator and all equipment and apparatus used or required in connection therewith are regularly inspected as herein provided.

Section 2. It shall be unlawful for the owner of any freight or passenger elevator to maintain or operate the same unless such elevator is inspected on or before the first day of January of each and every year, and quarterly thereafter, by a competent inspector, who may be a regularly authorized inspector of a liability insurance company in good standing in the State of Washington, or any employe or representative of some responsible firm in the business of elevator construction and maintenance satisfactory to the Superintendent of Buildings of the City of Seattle. All cost and expense of such inspection shall be borne and paid by the owner of such elevator.

Section 3. Immediately after any inspection has been made, as required by this ordinance, the owner, manager or agent of the building in which such elevator is located, shall file or transmit for filing in the office of the Superintendent of Buildings, on forms to be furnished by said superintendent, a full, true and correct report of such inspection, giving the location, description of elevator, date of inspection, by whom made, and the result thereof. If, from the report of such inspection, the Superintendent of Buildings has reason to believe that such inspection is inadequate or improperly made, he is authorized and empowered to require further and additional inspection to be made of any such elevator and to order the operation and use thereof

discontinued until such additional inspection is made.

Section 4. Any person violating or failing to comply with the provisions and requirements of this ordinance shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined in any sum not exceeding the sum of One Hundred Dollars (\$100.00), or imprisoned in the city jail for a term not exceeding thirty (30) days, or may be both fined and imprisoned.

WEIGHT OF VARIOUS MATERIALS AND STRUCTURAL PARTS

As Used by the Seattle Building Department in Computing Loads.

	Lbs. Per cu. ft.
Brick, Pressed	150
Brick, Pressed, laid, thin joints.	150
Brick, Common	125
Brick, Common, laid 3/8" joints	120
Brick, soft, laid 3/8" joints....	100
Cinders, dry, bituminous, in bulk	45
Coal, bituminous, loose.....	49
Concrete—	
Cinder, structural	110
Cinder, fireproofing	85
Stone or gravel.....	144
Slag (blast furnace).....	130
Slag (garbage incinerator)	95 to 105
Cast iron	450
Earth—	
Common loam, dry and loose	76
Clay and gravel, dry & loose	100
Common earth, dry & packed	100
Wet mud	120
Glass	157
Grain (at 60 lbs. per bushel)..	48
Granite	170
Gravel, dry	120
Granite Masonry, dressed.....	165
Granite Masonry, rubble.....	155
Ice	58.7
Limestone Masonry, dressed...	162
Marble Masonry, dressed.....	170
Mortar, hard, cement.....	135
Mortar, hard, lime.....	105
	Lbs. Per sq. ft.
Partitions—	
2"x4" studs, wood lath, 5/8" plaster, both sides	16
2"x4" studs, plaster board, 5/8" plaster, both sides.....	16
Channel studs, metal lath, cement plaster, solid 2" thick	20

Plaster on plaster block (one side)	5
2" Terra Cotta Tile.....	13
3" " " "	16
4" " " "	18
5" " " "	20
6" " " "	25
8" " " "	30
12" " " "	45
Plaster on T. C. partitions (one side)	5
2" Plaster Blocks	7
2 1/2" " "	8.5
3" " "	9.5
3 1/2" " "	10.5
4" " "	12
5" " "	15
6" " "	18
8" " "	22
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Roman tile, clay.....	12
Spanish tile, clay.....	19
Ludowici tile, Spanish.....	10
Tile roof laid in mortar, add	10
Copper (if no weight is spec- ified)	1 1/2
Tin	1
Corrugated iron	2
Tar and gravel.....	6
Prepared composition	1
	Lbs. Per cu. ft.
Sand, dry	100
Sand, wet	120
	Lbs. Per sq. ft.
Skylights, metal covered, wire glass	5
	Lbs. Per cu. ft.
Steel	490
Terra Cotto, large blocks.....	70
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MEMORANDUM

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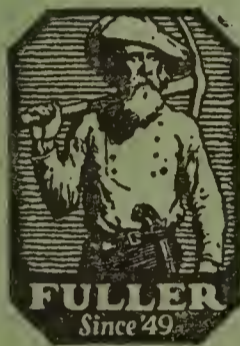
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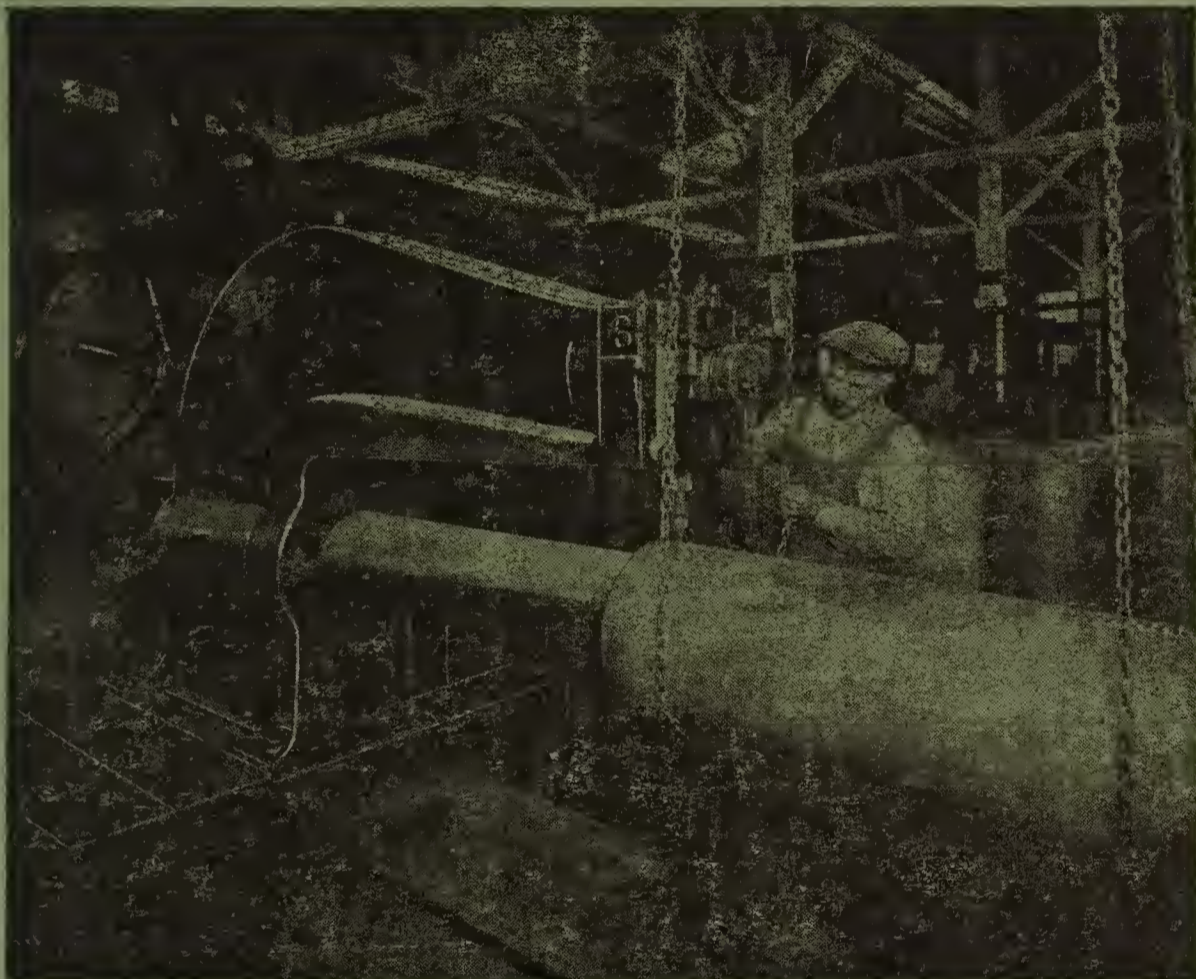
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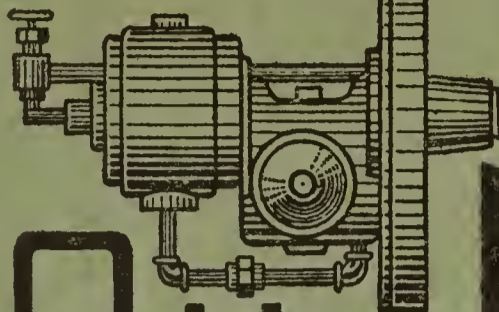
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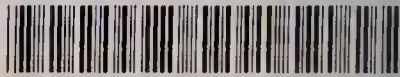
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