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**City of Seattle**

**1917**

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# THE BUILDING CODE

OF THE

## CITY OF SEATTLE

AND

## OTHER DATA SEFUL TO ARCHITECTS AND BUILDERS

Corrected to August 1, 1917.

## CONTENTS

	Page
THE BUILDING CODE.....	19
MISCELLANEOUS ORDINANCES .....	162
THE PLUMBING ORDINANCES.....	191
APPENDIX .....	207
INDEX TO THE BUILDING CODE .....	215
INDEX TO PLUMBING ORDINANCES.....	243

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JAMES STEPHEN, Secretary.



# ATTENTION

This Handbook of Revised Building Ordinances of the City of Seattle for the year 1917-18 is published in the interest of all

## ARCHITECTS, ENGINEERS AND CONTRACTORS

of the City and is distributed to them gratis. It depends entirely upon the advertising that appears on its pages for its existence.

The firms who advertise in this edition expect returns on their investments, and we have prepared a list of our advertisers which may be found on pages directly following. It is our endeavor to allow only good, reliable firms to advertise in the Handbook, and we take this opportunity of asking the Architects, Engineers and Contractors to consider those whose announcements appear in these pages, when in need of materials or when writing specifications. Thus lending your aid will make it possible to maintain the high standard of the book prepared for your use.

We welcome any suggestions from users of the Handbook which might tend to advance its aim. We have endeavored to index and cross index each section of the code matter and trust that this feature will prove especially serviceable to those who are obliged to refer to its pages.

## ALPHABETICAL LIST OF ADVERTISERS

	Page
Aero Alarm Co. ....	Elliott 827 6
Agutter, J. J. & Co. ....	Elliott 1638 10
Albion Mfg. Co. ....	Elliott 5450 118
Archer Blower & Pipe Co. ....	Sidney 95 16
Baisden, Jno. S., Inc. ....	East 770 10
Brace & Hergert Mill Co. ....	Main 345 118
Bratnaber Lumber Co. ....	West 41 9
Brower, Chas. R. & Co. ....	Elliott 2049 15
Bryant Lumber Co. ....	North 1 7
Buffalo Junk Co. ....	Elliott 3863 52
Bolcom-Canal Lumber Co., ....	Queen Anne 2171 8
Balfour-Guthrie & Co. ....	Elliott 1464 72
Central Sand & Gravel Co. ....	Elliott 2270 172
Church, P. B. & Co. ....	Main 524 52
City Lighting Department ....	Main 6000 Insert
Clarke, H. M. Iron & Wire Works ....	Main 6374 172
Clyde Equipment Co., ....	Main 1235 15
Cox, A. H. & Co., Inc. ....	Main 1121 17
Crowe, F. T. & Co. ....	Main 1991 11
Croxon-Kirk Construction Co. ....	Capitol 1285 28
Curtis Bros. ....	Capitol 1285 4
Dow, David ....	East 11 12
Eckart Plumbing & Heating Co. ....	Main 5682 13
Ehrlich-Harrison Co. ....	Elliott 1236 Index
Electrical Engineering Co. ....	Main 1438 38
Enterprise Brass Foundry ....	Main 6181 Index
Evans, R. T. & Co. ....	Main 3108 17
Finlay & Robb, Inc. ....	Main 3904 38
Galbraith, Bacon & Co. ....	Main 7000 Cover
Gould Lumber Co. ....	Queen Anne 1411 8
Hendry, W. R. & Co. ....	Elliott 1941 110
Henrikson & Co., Inc. ....	Elliott 3492 12
Hofius Steel & Equipment Co. ....	Main 6747 Cover
Hunter, Sam Co., Inc. ....	Main 3348 82
Instantaneous Alarm Co. ....	Main 234 6
Jenkins & Jones ....	Main 1447 4
Johns-Manville Co., H. W. ....	Elliott 5740 14
Japanese-American Electric Co. ....	Main 5499 Index
Kellogg, William W., Inc. ....	Main 1922 13
King, D. H. ....	Main 7308 13
Kitchen, J. Webb & Co. ....	Main 860 28
Lake Union Shingle Co. ....	North 2500 9
Massachusetts Bonding & Insurance Co. ....	Elliott 1812 14
Metcalf, D. J. ....	Main 1764 18
Myers & Baird, Inc. ....	Elliott 750 11
National India Rubber Co. ....	Elliott 1685 14
NePage McKenney Co. ....	Main 1553 18
Newell Bissell Lumber Co., ....	Sidney 464 7
Northwestern Mutual Fire Ass'n. ....	Elliott 827 Index
Northwestern Supply Co. ....	Main 3620 Cover
Nippon Plumbing & Electric Works ....	Elliott 2040 Index
Ogle Bros. ....	North 36 172
Olson-Nicholson Co., Inc., ....	Elliott 1049 172
Olympic Foundry Co. ....	Sidney 50 15
Olympic Portland Cement Co., Ltd. ....	Elliott 1464 72
Pacific Coast Steel Co. ....	Main 380 70
Pacific Door & Mfg. Co. ....	Sidney 410 118
Paraffine Paint Co. ....	Main 5093 9
Pearson Construction Co. ....	Main 684 12

Pioneer Sand & Gravel Co. ....	Main 5508	Page 17
Puget Mill Co. ....	Elliott 182	8
Puget Sound Sheet Metal Works.....	Main 176	Cover
Quist, A. W. Co. ....	Main 4497	12
Rainier Electric Co. ....	Elliott 2829	18
Raicolith Flooring Co., The .....	Main 7254	28
Republic Rubber Co. ....	East 413	52
Rodgers, Chas. W. Co. ....	Main 3446	17
Rustad Heating & Plumbing Co. ....	Main 5718	38
Schwager-Nettleton Mills .....	West 1100	9
Seattle Lighting Co. ....	Main 6767	Cover
Seattle & Rainier Valley Ry Co. ....	Rainier 880	38
Service Co., The .....	East 851	13
Shell Oil Co., of California .....	Elliott 116	5
Spinney, C. A. ....	Beacon 1166	16
Star Sheet Metal Mfg. Co. ....	Main 5851	Index
Strom, E. ....	East 8365	16
Sullivan Bros. ....	Main 1128	28
Sunset Electric Co. ....	East 826	13
Title Trust Co. ....	Main 2560	110
Union Oil Co. of California .....	Main 1251	110
Van Stone & Lohman .....	Elliott 1609	12
Washington Elevator Co. ....	Elliott 3813	110
Waterproof Paint Co. ....	Elliott 4984	82
Western Cooperage Co. ....	North 7	9
Western Hardware & Metal Co. ....	Elliott 563	82
Williams, C. H. E. ....	Elliott 3057	18
Young, A. M. ....	Elliott 2194	72

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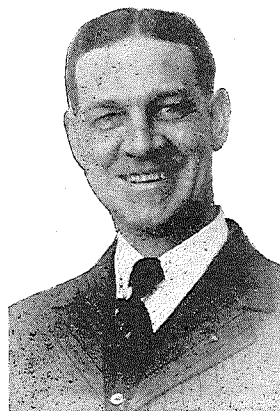
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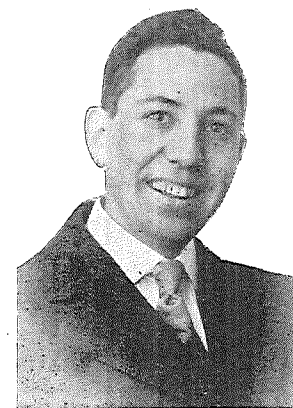
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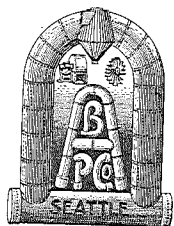
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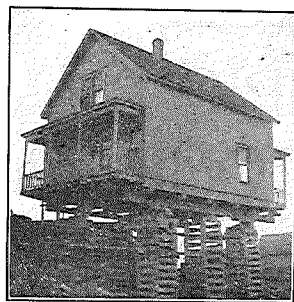
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**THE BUILDING CODE**  
**CITY OF SEATTLE**

ORDINANCE No. 31578 (SUPERSEDING ORDINANCE 17240)

Approved July 22nd, 1913.

(With Amendments and Rulings to August 1st, 1917.)

PART I.—ADMINISTRATION .....	19
PART II.—DISTRICTS AND CLASS OF BUILDINGS.....	27
PART III.—STRUCTURAL REQUIREMENTS .....	48
PART IV.—CONCRETE AND STEEL .....	66
PART V.—FIRE HAZARD REGULATIONS.....	86
PART VI.—MEANS OF EGRESS .....	98
PART VII.—PLACES OF HABITATION .....	117
PART VIII.—PLACES OF PUBLIC ASSEMBLY.....	134
PART IX.—BUILDINGS FOR SPECIAL USES .....	148
PART X.—MISCELLANEOUS PROVISIONS .....	162

**PART I. ADMINISTRATION.**

**SECTION 101.** The following provisions shall constitute the Building Code and may be cited as such. The Building Code presumptively provides for all matters concerning, affecting or relating to the construction, equipment, alteration, repair or removal of buildings or structures in the City of Seattle.

**SECTION 102.** The Building Code is hereby declared to be remedial and is to be construed to secure the beneficial intents and purposes thereof.

The provisions of this Code shall apply with equal force to all buildings, both public and private.

**SECTION 103.** Nothing in the Building Code shall be construed as requiring that buildings heretofore constructed and equipped must be reconstructed, rearranged, altered, or otherwise equipped unless it be by ordinance specifically so provided.

**SECTION 104.** Nothing in the Building Code shall be construed as in anywise invalidating any permit, heretofore issued under the provisions of any former ordinance, for the erection, removal, alteration or repair of any building, but such building may be erected, removed, altered or repaired under such permit in accordance with the provisions of such former ordinance.

Buildings partly constructed in accordance with permits obtained under former building laws, may be completed in accordance with such former laws if approved by the Superintendent of Buildings, whose decision in such case shall be subject to appeal to the Board of Appeals.

**SECTION 105.** Nothing in the Building Code shall be construed as in anywise affecting any act done or committed in violation of any former ordinance relating to the same subject as any of the provisions of this Code.

**SECTION 106.** Nothing in the Building Code shall be construed as in anywise affecting any prosecution or proceedings now pending in any court for violations of the provisions of any former ordinance relating to the same subject as any of the provisions of this Code, but all proceedings or prosecutions now pending for such violations shall be conducted to final judgment or determination in any court having jurisdiction as though said former ordinance were still in force.

**SECTION 107.** (As amended by Ordinance 55300). It shall be the duty of the Superintendent of Buildings to enforce the provisions of the Building Code, except such provisions as are expressly placed under the administration of other officials by ordinance or by the City Charter. He shall have charge of the issuing of building permits. He shall exercise general supervision over the constructing, equipping, altering, extending, repairing, removing and demolishing of all buildings; and over the maintaining of the structural features of all buildings. Unless otherwise herein explicitly provided, the Fire Marshal shall have jurisdiction over, and it shall be his duty to enforce the provisions of this ordinance insofar as they pertain to, the maintenance and use of all features of buildings and all equipment of buildings which have to do with the prevention, spread or extinguishing of fire or the safeguarding of life and property from fire.

**SECTION 108.** It shall be unlawful for any person to interfere with, prevent or seek to prevent the inspection of any building at any time by the Superintendent of Buildings or his authorized representatives; provided, however, that before entering occupied private dwellings or apartments for the purpose of making an inspection, the consent of the occupant thereof shall first be secured or twenty-four hours' written notice of his intention so to enter and inspect shall be served upon such occupant by the Superintendent of Buildings.

#### WORK MAY BE SUSPENDED, WHEN.

**SECTION 109.** (As amended by Ordinance 35566). The Superintendent of Buildings shall have authority and power to direct the immediate suspension of all or any portion of the work on any building in process of erection, removal, alteration, repair, or demolition, by attaching a notice to that effect on such premises, whenever it be found by him that such work is being performed without a permit issued in due form, or that the drawings and specifications bearing the approval stamp of his office are not on the premises and available for examination by him or his representative, or that such suspension is necessary to the proper inspection of work previously performed, or that such erection, removal, alteration, repair, or demolition is being conducted in an unsafe manner, or with materials or methods not in compliance with the provisions of this code or the permit issued therefor; and it shall be unlawful for any person to continue to erect, remove,

alter, repair or demolish any building after the Superintendent of Buildings has directed the immediate suspension of the work thereon, in the manner, and for the reasons in this section hereinbefore provided.

#### BUILDINGS MAY BE ORDERED VACANT OR DEMOLISHED.

**SECTION 110.** The Superintendent of Buildings is authorized and empowered to direct and require that any building or portion thereof 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 by him that the following conditions or any of them exist:

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

(b) That the construction, arrangement or equipment of such building or portion 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 111.** 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 unsafe or dangerous, and if he find 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 structure a notice of its dangerous condition. The notice shall not be removed or defaced without the consent of the Superintendent of Buildings. The person so notified shall promptly make secure or remove said building, structure, attachment or connection.

**SECTION 112.** 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 113.** 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 114.** 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.

**PERMITS NOT REQUIRED.**

**SECTION 115.** Ordinary repairs of buildings in the Third and Fourth Building Districts may be made without procuring a permit or giving notice to the Superintendent of Buildings, providing nothing is done to impair the strength or structural parts, and no change is made in stairs, elevators, fire escapes or other means of ingress and egress or in the provisions for light, air, and ventilation. Such repair work shall conform to the requirements of this Code.

**PERMITS REQUIRED.**

**SECTION 116.** It shall be unlawful, except as provided in the preceding section, for any person to commence or proceed to erect, alter, raise, add to, remove or demolish any building or part thereof without obtaining and having a permit from the Superintendent of Buildings therefor or without conspicuously posting on the premises the permit placard furnished by the Superintendent of Buildings, or to fail or neglect to comply with the provisions of this Code and the permit issued hereunder.

**SECTION 117.** Prior to the issuance of any permit hereunder it shall be required that application be made therefor in writing on forms provided for that purpose by the Superintendent of Buildings, 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 the lessee. Any person applying for a permit as agent for the owner or lessee may be required to produce evidence of his authority to do the work for which permit is desired.

**SECTION 118.** With every application for a permit there shall be filed in duplicate such blue-printed or otherwise printed drawings and printed 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 this Code shall be rejected.

**SECTION 119.** In the case of minor repairs and alterations or small one-story frame buildings, or in case the information conveyed by the written application is complete, the filing of drawings and specifications may be waived in the discretion of the Superintendent of Buildings.

**CORRECTION SHEET.**

**SECTION 120.** It shall be the duty of the Superintendent of Buildings, if upon examination he shall find that the application, plans or specifications contemplate work not in accordance with this Code to indicate such deviations in writing on a "correction sheet" and to return the drawing and specifications with "correction sheet" to the applicant, and no permit shall issue until such drawings and specifications and the application have been corrected and approved.

**SECTION 121.** If upon examination it be found that an application and the drawings and specifications accompanying the

same are in compliance with the provisions of this Code, the said drawings and specifications shall be stamped "approved" and so marked that they may be readily identified thereafter and one set placed on file in the office of the Superintendent of Buildings; the other set shall be returned to the applicant, together with a permit to proceed with the work contemplated and a permit placard.

**LIFE OF PERMIT**

**SECTION 122.** The permit issued hereunder shall be valid only for the number of days stated therein, and in no case for a longer period than one year. The Superintendent of Buildings shall be authorized and empowered to extend the time for which a permit is issued upon application being made for such extension before its expiration.

The Superintendent of Buildings is authorized to revoke any permit issued hereunder if it be found that the work permitted is being performed in violation of the terms of such permit or of the City Ordinances.

**SECTION 123.** It shall be unlawful to change the plans or specifications after the same have been stamped approved by the Department of Building and a permit has been issued, or to proceed with any work of building construction, alteration or repair in a manner not in accordance with the drawings and specifications as approved or the terms of the permit as issued without first obtaining from the Superintendent of Buildings permission in writing to make such change.

If, however, during the progress of the execution of any building work under a permit issued by the Superintendent of Buildings, it is desired to deviate from the terms of the application or drawings in any manner not affecting the structural members, the means of egress, the provisions for light, air and ventilation, or other essentials of the building, and not in violation of the requirements of this Code, such deviations may at such time be made without notice to the Superintendent of Buildings. Revised plans or proper legible descriptions of such changes must be and remain attached to the approved plans at the building for the information of the Inspectors.

**SECTION 124.** The issuance of a permit or the approval of drawings and specifications shall in no case be construed or taken as an approval by the Department of Buildings of manifest errors or of violations of this Code if discovered in such plans or specifications at any subsequent time.

**CHANGE OF OCCUPANCY OF BUILDINGS.**

**SECTION 125.** (As amended by Ordinance 36300.) It shall be unlawful to change the nature or class of occupancy of any building or part thereof without there be first issued a permit therefor jointly by the Superintendent of Buildings and the Fire Marshal.

It shall be the duty of the Superintendent of Buildings and the Fire Marshal prior to the issuance of any such permit to cause the premises to be inspected and withhold or refuse the insurance



of said permit if it be found that the construction, arrangement, or equipment, of said premises is not in all respects in conformity with the requirements of this Code for buildings used and occupied as in the manner contemplated by the application for such permit. The Superintendent of Buildings and the Fire Marshal, shall, when so requested, issue in writing a statement of the changes of construction, arrangement or equipment required to be made as a condition precedent to the issuance of the permit.

### BOARDS OF APPEALS.

**SECTION 126.** Any requirements necessary for the strength or stability of any structure or for the safety of the occupants thereof or of the public not specifically covered by ordinances in force, shall be determined by the Superintendent of Buildings, subject to appeal to the Board of Appeals in the manner herein provided.

**SECTION 127.** Any person having a direct interest in any ruling or decision of the Superintendent of Buildings may appeal therefrom to the Board of Appeals within thirty days after such ruling or decision by giving to the Secretary of the Board of Appeals notice in writing of his appeal, and mailing to the Superintendent of Buildings a copy thereof, and by paying the fee hereinafter required. After notice given to such parties as the Board shall order, a hearing shall be had, and the Board shall affirm, annul, or modify said action of the Superintendent of Buildings. If the said action of the Superintendent of Buildings be affirmed, it shall have full force and effect. If said action of the Superintendent of Buildings be modified or annulled, he shall be governed in accordance with such decision.

Any person appealing from a decision of the Superintendent of Buildings shall in every case be required to pay to the City Treasurer a fee of Ten Dollars at the time of giving notice of such appeal, said fee to be returned to said applicant in case the decision of the Board of Appeals sustains his contention.

All rulings and decisions of the Board of Appeals shall have the same force as the provisions of this Code, and it shall be the duty of the Superintendent of Buildings to carry them into effect in the same manner as the provisions of this Code.

**SECTION 128.** The Board of Appeals shall have power to determine whether and to what extent the provisions of this Code are applicable to specific cases which appear to them not to have been contemplated by it, and in such cases shall construe the law to secure the beneficial purposes thereof, according to the true spirit and intent of the Code. The decision of the Board of Appeals in such cases together with their reasons therefor shall be filed in the office of the Superintendent of Buildings within ten days after the hearing. A certified copy shall be mailed to the appellant and a copy kept publicly posted in the office of the Superintendent of Buildings for thirty days thereafter.

**SECTION 129.** Materials and methods of construction equivalent to those required by the provisions of this Code may, with the written concurrence of the Board of Appeals, be permitted by the Superintendent of Buildings. Said written concurrence shall

specify what is permitted. A record of the required and the equivalent method allowed shall be kept publicly posted in the office of the Superintendent of Buildings.

**SECTION 130.** The Superintendent of Buildings, with the concurrence of the Board of Appeals, may issue necessary regulations governing the materials and methods of construction to be employed for compliance with any of the provisions of this Code when such provisions are deemed not sufficiently detailed to secure the beneficial purpose intended to be accomplished.

Such regulations shall be posted as in the preceding section, and shall remain in force until rescinded or modified by the Board of Appeals or higher authority of competent jurisdiction.

**SECTION 131.** It shall be the duty of the Board of Appeals to submit to the Mayor on or before the first day of February in each year, a report giving a summary of all decisions of the Board, together with such recommendations for revisions of the law as may seem to them advisable. The Superintendent of Buildings shall cause the report to be printed as a separate document for public distribution.

### DEFINITIONS.

(See Index for Other Definitions.)

**SECTION 132.** The following words and expressions wherever occurring in the Building Code are used in the sense defined in this section or as in the respective sections here indicated by number.

**ALLEY:** Any public thoroughfare 16 feet or less in width.

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

**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.

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

**DETENTION:** (See Refuge and Detention).

**DIVISION WALL:** An interior wall dividing a building and extending from cellar or basement floor to and through the roof.

**DWELLING:** A family residence in distinction from a tenement or apartment.

**ESTABLISHED GRADE:** The grade at the street curb as fixed by ordinance.

**FACTORY:** A building used for manufacturing articles by machinery.

**FLAT BUILDING:** A building of two or more stories designed and used as a residence by two or more families, with separate entrances for each.

**GARAGE:** A building or any portion thereof in which an auto-

mobile propelled otherwise than by electricity is kept for any purpose other than display.

**GRADE:** See established and natural grade.

**HABITABLE ROOM:** In a building used wholly or partly as a place of habitation; a room in which a family or the individual members thereof regularly sleep or eat or carry on their usual domestic or social vocations or avocations, in distinction from a laundry, bath room, pantry, closet, cellar, corridor or similar space used neither frequently nor long at a time.

**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.

**HOTEL:** A building or any part thereof having more than twenty sleeping rooms designed and used for lodging transient guests.

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

**LODGING HOUSE:** A building or any part thereof used for lodging purposes and having more than five and less than twenty-one sleeping rooms.

**LOT LINE:** The boundary line of a lot as shown by a recorded plat.

**MASONRY:** Brick, stone, tile or terra cotta laid in mortar or concrete. (See section 336.)

**NATURAL GRADE:** The undisturbed natural surface of the ground.

**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.

**PERSON:** One or more natural persons of either sex, associations, 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 passageway used in common by all the occupants of a building.

**RETAINING WALL:** A wall subjected to lateral pressure.

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

**STREET:** A public thoroughfare more than 16 feet no inches wide.

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

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

**WAREHOUSE:** A building used for the storage of goods, wares or merchandise.

**WIRE GLASS:** Glass not less than one-quarter inch thick containing wire fabric.

**WORKSHOP:** A building or room in which articles are manufactured by hand.

## PART II. DISTRICT AND CLASSES 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.)

### CLASSES OF BUILDINGS AND WHERE PERMITTED.

**SECTION 210.** There shall be four classes of buildings, named as follows: Fireproof Buildings, Mill Buildings, Ordinary Masonry Buildings and Frame Buildings.

Buildings in the First Building District shall be Fireproof Buildings, or Mill Buildings not over two stories high. Buildings in the Second Building District, except as otherwise provided, shall be Fireproof Buildings, Mill Buildings, one story ordinary Masonry Buildings, and ordinary Masonry Dwellings not over two stories and an attic in height. Buildings in the Third Building District, except as otherwise provided, shall be Fireproof Buildings, Mill Buildings, ordinary Masonry Buildings, one story frame buildings or Frame Dwellings not over two stories and an attic in height. Buildings in the Fourth Building District, except as otherwise provided, shall be Fireproof, Mill, ordinary Masonry or Frame Buildings.

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

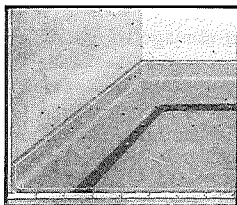
A building of a higher class than is required for the building district in which it is located shall only be required to have the essential structural features of its class, and such buildings shall at least comply in other respects with the requirements of buildings in said district; provided, however,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



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**Croxson-Kirk Construction Co.**

Specializing in

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**BRIDGES and VIADUCTS  
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ROADS and PAVINGS**

**Securities Building**

**Seattle, Washington**

**J. Webb Kitchen & Co.**

**Better Awnings,**

**Recess Boxes,**

**Tents, Canvass**

**Main 860**

**Seattle, Wash.**

**SULLIVAN BROS.**

**PLUMBING and GAS FITTING  
HOT WATER and STEAM HEATING**

**Trimble Bldg., 518 Olive St.**

**Main 1128**

**SEATTLE, WASH.**

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 Fah., 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 or 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 Fah., 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 studding; metal lath and thin wood studding plastered solid; ¼ 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 provided 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 required, except that plaster of paris and sulphate of lime may be used in wall plaster and as a gauge for mortar.

#### **FIREPROOF BUILDING CONSTRUCTION DESCRIBED.**

**SECTION 217.** In fireproof buildings, 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 concrete 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 buildings, 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 materials. The outside of all metal columns, 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 supporting metal in the shafts of structural 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" of concrete 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 masonry enclosing the concrete. Soffits and exterior edges of beams exposed to the weather shall be fireproofed with not less than 2½ inches of fireproofing. 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 buildings, 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 fireproofed beyond all parts of the metal with not less than two inches of concrete, brick or terra cotta.

**SECTION 220.** In fireproof buildings, 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 thickness is used which is not in itself fireproof the structural iron or steel shall be fireproofed solid independently of such facing with not less than two inches of brick, dense tile, terra cotta, or concrete. Plastering shall not be considered as fireproofing except as elsewhere provided. Where concrete is used for fireproofing structural iron or steel substantial wire mesh shall be wrapped about all vertical and diagonal members and about the underparts of all horizontal members.

**\*SECTION 221.** In fire proof buildings, 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 construction by a fireproof ceiling.

**SECTION 222.** In fireproof buildings, finish floors of public halls and stair platforms shall be of stone, dense tile, ceramic tile, cement mortar, 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 imbedded in concrete brought up full and flush with top of the sleepers.

\*(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.)

**\*SECTION 223.** Fireproof openings are openings fitted with metal or 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 ¼-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 locked-jointed or riveted.

Fireproof openings shall be required 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 openings, 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 required in street fronts, provided no exposed woodwork shall project more than four inches beyond the building line.

Fireproof buildings other than warehouses, stores, workshops and factories, if immediately opposite to fireproof 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.

\*(Fireproof shutters, doors or windows must be equipped with automatic self-closing devices.)

**\*SECTION 224.** In fireproof buildings, all basement and cellar partitions and partitions enclosing stairways and elevator shafts shall be fireproof. Partitions enclosing the parts of public hallways which immediately adjoin stairs and elevators shall be fire proof except as to openings. All such partitions shall rest upon the structural parts of the building 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.

\*At a session of the Board of Appeal held November 5, 1913, it was resolved that partitions constructed of galvanized metal lath, steel channels and plastered solid two inches thick should be classed as "fireproof partitions."

**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 fire proof 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 sidewalls, 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 in-

combustible 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 227.** The height of fireproof buildings, except as otherwise provided, shall be regulated by a successive reduction of the areas of the floors above the third floor. The allowed area of the third and lower floors as compared to the lot area is elsewhere defined for courts of buildings. The allowed area of the fourth and each succeeding floor shall be made less than the allowed area of the floor immediately below by 1 per cent. of the lot area, up to the floor first above a height equal to once the width of the widest adjoining street, plus 25 feet no inches, but not exceeding 125 feet no inches.

Starting with the floor first above such height, its area shall be reduced 2 per cent. of the lot area; the area of the next floor above 3 per cent; the next floor 4 per cent., and so on until a floor area is reached not exceeding 20 per cent of the lot area.

**SECTION 228.** The height of fireproof warehouses, workshops, factories, stores and buildings on lots surrounded by thoroughfares shall be regulated by a successive reduction of the areas of the floors above a certain floor. Such floor shall be the floor first above a height equal to once the width of the widest adjoining street, plus 25 feet no inches, but not exceeding 125 feet no inches. Starting with the floor first above such height its area shall be reduced by 2 per cent. of the lot area. The area of the next floor above 4 per cent. the next floor 6 per cent., and so on until a floor area is reached not exceeding 20 per cent. of the lot area.

**SECTION 229.** From such last mentioned floor upward the building may continue in the form of a tower or other feature not exceeding 20 per cent. of the area of the lot, until a height above the street is reached not exceeding twice the allowed height of said floor above the street.

**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; BLANKET CLAUSE.

**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 be not 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 dimension. 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 2½ 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.

(In laminated floors at least fifty per cent of the timbers must pass over the supports of a span to one of the other of the quarter points of the adjacent spans. No splices are permitted in the middle half of a span and not more than two splices at the same point in any one-foot width of floor.)

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.

(Waterproof paper may be omitted in plastered mill buildings.)

The finish floor shall be tongued and grooved flooring not more than 6 inches wide, nor less than ¾ inch thick and laid diagonal or crosswise with the underfloor when practicable. The finish and under floor shall not extend closer than ½ inch to the walls which are parallel to the underfloors. The ½-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.

(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.)

**SECTION 239.** In Mill Buildings, all floors shall be provided with gutters and scuppers for escape of water through outside walls at 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 built of two thicknesses of splined or tongued and grooved plank not more than 6 inches wide, dressed to thickness, not less than  $1\frac{3}{4}$  inches thick and placed vertically with broken joints. Or, partitions shall be built of studs not smaller than 2x4 inches, placed vertically side by side, with broken joints and solidly spiked together. Or, partitions shall be built of metal studs, metal lath and cement plaster of a solid thickness of  $1\frac{3}{4}$  inches. Or, partitions shall be built of wood studs not less than 1 inch thick, lathed on one side with metal lath, and the studs covered on the other side with strips of overlapping metal lath, the entire partition plastered solid with cement plaster, finishing not less than 2 inches thick.

(Laminated partitions are not permitted unless covered on both sides with plaster or other approved material to prevent fire from working through the cracks. Single thickness 2x6 matched plank partitions of good material when plastered both sides are permitted.)

**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 spaces if not fireproof should be double, with a shallow air space between, and divided into small air-tight 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.

(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  $2\frac{1}{2}$ " 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  $1\frac{1}{2}$ " 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.)

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 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 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' 0" above such grade at any point. No Mill Building shall exceed an average 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 1¾-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 ½ 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 partition 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

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sufficient size to carry the load safely. Joists carrying partitions shall be doubled or otherwise sufficiently strengthened. Joists having a span of 8' 0" 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 locked-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 sub-

stitute for plastering in places of habitation, refuge or detention or in places of public assembly.

#### 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 BUILDINGS 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 studding shall be cut in between the studding 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 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 public building, an office building, place of assembly, place of refuge and detention, or place of habitation other than a dwelling, shall have all walls, partitions and ceilings lathed and plastered not less than 1/2 inch thick. If such building is two

stories or more in height, the side of partitions adjoining public halls, passages and stairways, and all stair soffits and hall ceilings shall be lathed throughout with approved metal lath and plastered with hard plaster not less than  $\frac{1}{2}$  inch thick.

**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.

#### 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 0 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.

#### ADDITIONAL DEFINITIONS.

**SECTION 285.** A CORNER LOT is any part of a block 50 feet 0 inches in least dimension and located at the intersection of two or more streets. If the corner part of a corner lot is built upon, and such corner part equals at least one-half of the corner lot, then the remainder of the lot shall not be considered as part of

a corner lot. When the lot angle at the intersection falls between 140 and 220 degrees the streets shall not be considered to intersect and the lot is not a corner lot.

An INSIDE LOT is any part of a block which faces one street or one street and an alley, or two streets, but not at their intersections.

A THOROUGHFARE shall be considered to be a street or an alley. Public Parks, Squares, Cemeteries, or other permanently unoccupied spaces may be considered as streets in regulating the height of buildings if so approved by the Superintendent of Buildings.

A YARD is any part of a lot extending the full width or length of the lot or its equivalent and uncovered from the ground to the sky and not included by any angle or angles of the building.

A COURT is any free, unobstructed and unoccupied part of a lot or the space above it, extending from the roof downwards to the ground or to any floor and included by one or more angles of the building.

An INTERIOR COURT is a court entirely enclosed by the walls of the building and used for light and ventilation, always including the light and ventilation of one or more sleeping, living or working rooms or other rooms occupied by people.

An EXTERIOR COURT is a court included by one or more walls of the building, but not entirely enclosed by such walls.

A PARTY LINE COURT is a court surrounded by the walls of the building and by the party line of the adjoining property.

A SHAFT is usually smaller than a court and is any free, unobstructed and unoccupied part of a lot, or the space above it, extending from the roof downwards to any floor and entirely enclosed by the walls of the building and used to light and ventilate stairs, elevator shafts, water closets, slop sink closets, private laundries, bath rooms, pantries, kitchenettes, or for similar purposes approved by the Superintendent of Buildings, but not used to light and ventilate sleeping, living, working rooms, or other rooms occupied by people.

A STORY is that part of a building between two successive finished floor levels.

For the purpose of numbering the stories of buildings, the first or ground floor is that floor nearest to the average inside grade level of the thoroughfare upon which the building fronts, or the floor upon which the main entrance is located.

Any part of the first story extending into higher ground so as to become by definition a basement or cellar, may be considered by the Superintendent of Buildings as a basement or cellar.

In special cases due to steep grades the building ordinances are to be so construed as to obtain conditions of safety, light, air and ventilation equivalent to those required in buildings on approximately level ground.

A BASEMENT is a story or any part of a story, of which not more than one-half the height is below the level of the abutting thoroughfares nor below the general level of the surrounding ground; or a story of which not more than three-fourths its height is below such level, provided an areaway as defined by this code and not less than 2 feet 6 inches wide is built entirely along that part of such story.



A CELLAR is a story or any part of a story of which more than  $\frac{1}{2}$  the height is below the level of the abutting thoroughfare or below the general level of the surrounding ground, with the exception stated under definition of basement story.

#### DISTANCE APART AND FROM LOT LINES, FRAME BUILDINGS.

**SECTION 286.** Except as hereinafter provided, every frame building shall be at least 3 feet 0 inches from the lines of adjoining lots. Unless otherwise provided, any frame building may be within less than 3 feet no inches of the line of an adjoining lot if the wall of such frame building adjoining or facing toward such lot line be of masonry or of approved incombustible or slow burning construction. Every opening in such wall shall be either an automatic closing or fixed fireproof window, or an automatic fire door.

Any frame dwelling may be within less than 3 feet 0 inches of the line of an adjoining lot; provided frame dwellings, as ordinarily constructed, shall be kept not less than 3 feet 0 inches apart for fire-fighting purposes. Frame outbuildings, appurtenant to dwellings, if not exceeding 15 feet 0 inches in height and not exceeding 400 square feet in ground area may be within less than 3 feet 0 inches of the line of an adjoining lot, provided such outbuildings, including private garages, shall be so placed as not seriously to obstruct the light or vitiate the air required for places of habitation, and so as not to create unnecessary or serious fire hazard. Such outbuildings and their location shall be subject to the approval of the Superintendent of Buildings.

In his reasonable discretion the Superintendent of Buildings may permit appendages on frame buildings to be within less than 3 feet 0 inches of the line of an adjoining lot, or within less than 3 feet 0 inches of another frame building.

#### LIGHT, AIR AND VENTILATION.

**SECTION 287.** 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 for the users of the building, and such light, air and ventilation shall not be less than herein required.

The entire lot area may be occupied by cellar, basement and first stories of all buildings except frame buildings and except tenements or apartment buildings. Fireproof buildings used for tenements or apartments above the first story, and for other purposes below may have cellar and basement covering the entire lot, and first story covering the entire width of lot if such lower stories are supplied with light, air and ventilation, good and sufficient for the purposes for which they are used.

No second or third floor of any building shall cover a greater percentage of the lot on which the building stands than that shown by the following table:

"On Sept. 1st, 1915, the Board of Appeals ruled "that dwellings as ordinarily constructed may be placed within 3 feet of lot lines, provided, that no part thereof shall be less than 18" from said lines."

	Places of Habitation except Hotels and Clubs; Places of Refuge and Detention; Schools	Clubs; Hotels	Office Buildings	Lofts, Warehouses, Workshops, Factories and Stores
Corner lots on 2 streets .....	83%	88%	93%	100%
Corner lots—2 streets and an alley..	85%	90%	95%	100%
Corner lots on 3 streets .....	87%	92%	97%	100%
Lots surrounded by thoroughfares..	100%	100%	100%	100%
Inside lots on 1 street .....	73%	78%	83%	100%
Inside lots on 1 street and an alley....	75%	80%	85%	100%
Inside lots on 2 streets .....	77%	82%	87%	100%

The Board of Appeals in regular session of February 4th, 1914, amplified the provisions of the above Section 287, as follows:

	Places of Habitation except Hotels and Clubs; Places of Refuge and Detention; Schools	Clubs; Hotels	Office Buildings	Lofts, Warehouses, Workshops, Factories and Stores
Lots on corner of 1 street and 1 alley, with greater frontage on street .....	81%	86%	91%	100%
Lots on corner of 1 street and 1 alley, but with greater frontage on alley .....	79%	84%	89%	100%
Lots on corner of 1 street and 1 alley, with frontage on street and alley equal .....	80%	85%	90%	100%

The foregoing requirements were made in order to provide for alley corner lots, which were not already covered by Section No. 287.

In buildings on lots surrounded by thoroughfares the Superintendent of Buildings shall require courts, when needed, sufficient to afford light and air equal to the light and air required of like buildings on corner lots.

**SECTION 288.** The area of courts of each story above the third story in mill and ordinary masonry buildings, not used as warehouses, workshops, factories or stores, shall be 1 per cent. of the lot area greater than the area of the courts of the floors immediately below. The area of courts above the third floor in fireproof buildings shall be as required in determining the heights of fireproof buildings.

**SECTION 289.** Sleeping, living, working rooms, kitchens, offices and other rooms occupied by people in places of habitation, refuge and detention, clubs, office buildings, workshops, factories and other places of like requirements for light, air and ventilation shall be lighted through an outside or court wall or through the ceiling. When such rooms have their only glass exposure upon

an interior or party line court, then such court shall have at least the following minimum widths for the different stories of the courts:

Height	Minimum Width	Height	Minimum Width
1 story.....	5 feet	9 story.....	16 feet
2 story.....	6 feet	10 story.....	18 feet
3 story.....	7 feet	11 story.....	20 feet
4 story.....	8 feet	12 story.....	22 feet
5 story.....	9 feet	13 story.....	24 feet
6 story.....	10 feet	14 story.....	26 feet
7 story.....	12 feet	15 story.....	28 feet
8 story.....	14 feet	16 story.....	30 feet

Party line courts in such buildings may be not less than three-quarters of the minimum width of interior courts but shall be of a length not less than the minimum width and the length shall be parallel to the party line.

When a fireproof building is built adjoining a lower fireproof building, constructed to its designed height and not less than four stories high, the size of the party line court for the high building need not be larger than is required by the above table for the lower building, provided the combined area of adjoining party line courts be not less than is required for both buildings upon the basis of the height of the lower building, and providing said courts are joined for a distance along the party line equal to twice the above required minimum width.

Exterior courts in such buildings which are open to the outside air at the end only shall not be less in width than 75 per cent of the minimum width of interior courts. Such court shall not be longer than five times the mean width.

A court, when covered by a skylight, shall have the required minimum width increased 25 per cent, and such skylight shall have louvres or other ventilation having a fixed open area equal to 10 per cent of the area of the court. The Superintendent of Buildings may require additional fixed or movable louvres or vents if the conditions of light, air and ventilation require it.

In no case shall the sum of the area of all courts, shafts and yards be less than the percentage of the lot, or the space above the lot, required by the Code to be left uncovered.

Interior or party line courts, unless of 50 per cent. greater area than that required in such buildings, shall have readily accessible from the bottom story of the court a clear, unobstructed duct or passageway leading to a yard or thoroughfare and having a cross section equal to not less than 5 per cent. of the area of the court, except in buildings not over three stories high where such duct or passageway may be omitted.

Fire escapes shall not be considered as obstructions to the area of yards or courts provided such yards, courts and fire escapes fulfill the uses for which they are intended.

**SECTION 290.** Good and sufficient light, air and ventilation shall be provided for all shafts.

Outside wall openings, courts or shafts shall be used to light and ventilate kitchenettes, except that kitchenettes shall not open into the same shaft with bathrooms, water-closets, slop sink closets

or with other spaces producing objectionable odors, dusts or gases.

**SECTION 291.** Outside wall openings, courts, shafts or vent ducts shall be used to light and ventilate water closets, private laundries, bathrooms, pantries, and for similar purposes if required by the Superintendent of Buildings, except that pantries shall not open into the same shaft with other spaces producing objectionable odors, dusts or gases.

#### TOILET ROOMS—VENTILATION OF.

**SECTION 292.** General water closet accommodations for tenement, apartment or lodging houses shall not be permitted in cellars or basements or under sidewalks.

Every room in which water closets or urinals are installed must be open to the outer air by means of a window, or ventilated light shaft, provided, however, where water closets are placed in stories one or more of which is below the ground level, or in interior rooms, a vent duct of sheet metal and artificial light may be employed instead. Windows for rooms in which water closets or urinals are installed shall have an area of not less than 1 foot 0 inches in width and shall have an area of not less than one-eighth of the total floor space of the room in which said fixtures are installed; provided, however, that in no case shall such windows have an area of less than 432 square inches.

Light shafts used for the ventilation of toilet and urinal rooms shall have an area not less than one-twentieth of the combined area of the floor space of all such rooms opening therein.

Light shafts used for such purposes in tenement or apartment houses and other places of habitation, refuge and detention shall have an area of not less than one-tenth of the combined area of the floor space of such rooms opening therein. The width of such shaft shall not be less than one-third of its length.

Every light shaft used for ventilation of toilet rooms and having a skylight over shall be increased 25 per cent. in area and shall be ventilated by fixed louvres. The total area of such louvre opening shall not be less than the total area of said light shafts. Every light shaft used for ventilating and lighting toilet rooms and having more than three of its sides enclosed must have no connection with, or openings into, rooms used for any other purpose. Rooms in which urinals or water closets are located shall be separated from all other rooms and hallways by substantial partitions extending to the ceiling. There shall be no opening or transom from adjoining rooms or hallways except the door provided for entrance to same; provided, however, nothing in this section shall prevent the use of stationary windows for lighting purposes in said partition. Doors for toilet rooms shall be provided with self-closing arrangements to keep same closed at all times when not in use.

**SECTION 293.** Vent ducts for rooms where water closets and urinals are located shall have an area equal to 2 square inches to every square foot of floor space of the room in which fixtures are located; provided, however, there shall not be allowed any vent ducts less than 48 square inches in cross sectional area and not less than 4 inches of inside width. Vent ducts from toilet rooms must

be run separate to the outer air or the roof, and must be as nearly vertical as practicable and must have no angle greater than  $\frac{1}{8}$  bend when practicable. Each room shall have a separate duct which in no case shall have any connection with, or opening into, any other room except that several ducts may be connected into one ventilator at roof, such ventilator to be of an area equal to the combined area of all ducts connected thereto. Such ducts shall be made of heavy sheet metal and other approved fireproof materials. All joints shall be made air-tight. Such vent ducts may be used to ventilate bed closets and bed pockets provided such bed pockets or bed closets have ducts or fixed open louvres for ingress of air equal in area to the required vent ducts for egress of air, further provided that such bed closets and bed pockets are well ventilated and sanitary.

**SECTION 294.** Plans showing methods of ventilating all rooms and compartments of the building and the location and kind of plumbing fixtures to be installed, must be filed at the office of the Department of Health and Sanitation before a permit is issued for the installation of any plumbing or drainage.

### PART III. STRUCTURAL REQUIREMENTS

#### LIVE LOADS.

**SECTION 301.** All buildings and the several parts thereof 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 building is its own weight including: Partitions and permanent fixtures and mechanisms.

**Section 303.** Live load shall comprise all load other than dead load. Floors and roofs shall be designed for the actual live load intended to be applied, but in no case less than the required live load hereinafter stated.

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

30 pounds for: Any marquee or permanent awning.

40 pounds for: Places of habitation, including: Hotels, Boarding or Lodging Houses, Tenements, Apartments or Flats, Family Residences, Clubs, except rooms containing over 500 square feet of floor area; Stairways in family residences, area of treads and landings. Roofs, horizontal area.

50 pounds for: Office Buildings above the ground floor; Places of Refuge and Detention, including; Hospitals, Buildings for housing the aged, the sick and infirm, imbeciles or children; Asylums Houses of Correction, Police Stations, Jails, Class Rooms with fixed seats, seating less than 100 pupils.

75 pounds for: Places of Public Assembly with fixed seats, including: Theatres, Moving Picture and Vaudeville show places, Assembly Halls, Churches, Chapels, School Rooms seating more than 100 persons, Court Rooms; Rooms in places of Habitation containing over 500 square feet of floor area; Stable and Carriage Houses.

100 pounds for: Places of Public Assembly, without fixed seats, including: Assembly Halls, Dance Halls, Rinks, Restaurants and Public Dining Rooms, Depots, Lodge Halls, Parish Halls, Public Lobbies and Corridors in Schools or other places of assembly; Places of Public Exhibition, including: Exhibition and Exposition Buildings; Grand Stands for Baseball, Athletic or Amusement Parks and like structures, Museums, Art Galleries and like structures, Ordinary Stores, above the ground floor; Stairways in all buildings, except family residences, area of treads and landings.

125 pounds for: Office buildings and Ordinary Store Buildings, ground floor and basement; Light Manufacturing; Light Storage; Garages.

250 pounds for: Armories, Drill Rooms and Riding Schools.

**SECTION 305.** All buildings or parts of buildings hereafter erected and not herein specifically described shall be constructed amply strong for the purpose intended.

In the case of buildings used for heavy merchandise manufacture, or storage, or any other purpose for which the live load is not herein prescribed, the live load, upon application, shall be determined by the Superintendent of Buildings.

**SECTION 306.** Before any building hereafter erected or altered to be occupied as a store building, warehouse, factory or workshop, shall be occupied or used for any such purpose, the owner of such building shall procure from the Superintendent of Buildings a certificate in writing certifying to the amount of live load per superficial foot which each floor of said building is designed to sustain with apparent safety, and a copy of such certificate shall be kept constantly posted in a conspicuous place on each floor; and it shall be unlawful for any person to place any greater live load upon any floor of such building than that specified in such certificate.

Whenever the Superintendent of Buildings shall have reason to believe that any building now or hereafter used or occupied for any of the purposes above mentioned is being subjected to greater loads upon any floor than said floor is designed to carry with apparent safety, 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, and to issue his certificate as hereinbefore provided, and cause the same to be posted in a conspicuous place on each floor of such building, and it shall thereafter be unlawful for any person to place any greater live load upon any floor of such building than that specified in such certificate.

It shall be unlawful for any person to remove, mutilate, destroy or conceal any certificate issued by the Superintendent of Buildings and posted as provided in this section.

**SECTION 307.** Reduction of live load shall not be permitted in determining the strength of any part of a building except in accordance with the following provisions:

Walls, piers and columns, in buildings more than three stories high used for stores, offices, places of habitation, refuge and detention shall be designed to carry besides the dead load not less than the following percentage of the required live load: Roof and top floor 100 per cent., next lower floor 95 per cent., and for each succeeding lower floor 5 per cent. less, until a minimum of 50 per

cent. is reached and maintained for the remaining floors, if any. In all other buildings the full live-load shall be taken.

Footings bearing on soil, other than hard pan, shall be designed to carry the dead load not less than the following percentage of the live load used in designing the wall, pier or column to be supported; 80 per cent. for stores, storage and manufacturing buildings, offices, schools, places of habitation, refuge and detention; 60 per cent for public buildings and places of public assembly and exhibition, other than schools.

Footings on piles or caissons or other unyielding foundations shall be designed for the full live and dead load of the wall, pier or column to be supported.

#### ECCENTRIC LOADS.

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

#### WIND PRESSURE.

**SECTION 309.** All buildings and appendages thereto shall be designed to resist a horizontal wind pressure of 30 pounds per square foot of exposed surface. In no case shall the overturning moment due to wind pressure exceed 75 per cent. of the moment of stability due to dead load.

#### LATERAL EARTH PRESSURE.

**SECTION 310.** Lateral earth pressure shall be calculated in accordance with actual conditions and accepted modern engineering practice.

#### MATERIALS OF CONSTRUCTION IN GENERAL.

**SECTION 311.** All materials used in building 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 materials 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 con-

ditions and tests by ordinances required of materials used for like purposes.

#### LOADS PERMITTED AT FOUNDATIONS.

**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 is 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, 1 ton.

Ordinary clay and sand, together in layers, 2 tons.

Clay or fine sand, firm and dry,  $2\frac{1}{2}$  tons.

Very firm, coarse sand, stiff gravel or hard clay,  $3\frac{1}{2}$  tons.

Firm sand or gravel in deep excavations, 5 tons.

Well cemented gravel hardpan in deep excavations, 8 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 by and at the expense of the owner of the proposed building.

**SECTION 317.** Where a test is made of the sustaining power of the soil the Superintendent of Buildings shall be notified so that he may be present, either in person or by representative. The record of the test shall be filed in his office.

#### PILE FOUNDATIONS.

**SECTION 318.** Where pile foundations are used the Superintendent of Buildings may require auger borings to be made to determine the nature and position of the underlying soil strata.

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.

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

**SECTION 319.** Timber piles for the purpose of supporting a wall, pier or column shall be of good material, reasonably straight, at least 6 inches in diameter at the small end and 12 inches at the butt; shall be spaced not less than 24 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. Timber capping, when used, shall also be below the same surface. Concrete capping,

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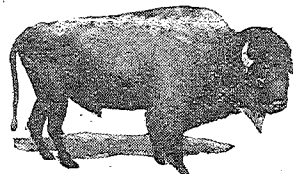
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when used shall extend below the tops of the piles for at least 6 inches, and at least 6 inches in width outside of the piles and shall be at least 12 inches in total thickness.

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

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

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

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 reasonable 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.

**SECTION 325.** Wherever concrete piles are used, there bearing power shall be determined by loading test piles. The allowable working load shall in no case be more than one-half of the load supported without noticeable settling nor exceed four hundred pounds per square inch of concrete at the middle section plus six thousands pounds per square inch for any longitudinal steel reinforcement.

The tests shall be made upon at least two piles driven under substantially ordinary working conditions including the proximity of other driven piles.

### FOUNDATIONS IN GENERAL

**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 and until all cement has properly set. 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 buildings more than one story high shall extend at least 2 feet 0 inches below the surface of the ground upon which they are built, and in the case of all buildings 100 feet 0 inches 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 10 feet 0 inches below the sidewalk grade. In that case such foundations need not extend to a greater depth than 10 feet 0 inches provided sound hard soil is found at that depth.

Every building erected without cellar or basement shall have all sod and all soil containing organic matter beneath the same removed before joists are laid and shall have in the external walls below the first floor level not less than four ventilators of suitable dimensions, and so placed as to insure cross currents of air, and no sill or floor joists shall be less than 6 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 foot 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 40 feet 0 inches or more in height, hereafter erected, which is located adjacent to any street or alley containing any then existing water main, water tunnel, sewer, conduit, tunnel, subway or other underground construction, owned or controlled by the City, shall be so constructed that the foundations or superstructure thereof shall not be supported in whole or in part 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 stones shall be close fitted and bedded solid. Footings of brick shall be of hard-burned brick, and shall not be reduced more than  $2\frac{1}{2}$  inches to each two courses. Footings of stone or concrete shall not be reduced more than 8 inches to the foot in height and all foundations shall rest upon solid ground or piling.

**\*SECTION 333.** Masonry foundation walls or piers shall be provided for frame dwellings more than 30 ft. 0 in. or two stories high; for all other frame buildings more than 20 feet 0 inches or one story high; and for one story frame buildings used as places of assembly, refuge or detention; provided, however, that the Superintendent of Buildings may require masonry foundation walls or piers for any frame building, when, in his judgment, the occupancy, location or construction of the building requires them.

All masonry foundation walls or piers shall be carried above the surrounding ground. Masonry foundations walls for frame buildings not more than 30 feet 0 inches or two stories high shall be, if of brick or stone, not less than 8 inches thick, and if of unreinforced concrete, not less than 6 inches thick; provided, however, that an unreinforced concrete wall retaining or designed to retain more than 5 feet 0 inches of earth shall be not less than 8 inches thick.

Masonry foundation walls for frame buildings more than 30 feet 0 inches or two stories high shall be, if of brick or stone, not less than 12 inches thick and if of unreinforced concrete, not less than 10 inches thick.

Frame buildings veneered with masonry shall have masonry foundation walls upon which the veneer shall directly rest.

Frame buildings not required to have masonry foundations shall be provided with wood foundation walls and footings of such design and strength as the Superintendent of Buildings deems necessary.

Buildings over tide or shore lands may rest on piles.

**SECTION 334.** In all cases where there is an addition to the thickness of existing walls, a new foundation shall be built in such a manner as to carry jointly both the new and old walls.

**SECTION 335.** All foundations shall be protected against the effect of frost, and cement mortar which has been effected by frost, shall not be used in building construction.

### STONE MASONRY.

**SECTION 336.** The several classes of stone masonry construction shall conform to the definitions as follows: (See Section 347.)

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.

(Footings are required for all foundation walls, the minimum width of footing to be twice the thickness of wall for walls up to 12" in thickness.

Brick veneer on frame walls must be anchored every seventh course or less with galvanized crimped metal or wire ties spaced not over 24" centers. Spikes are not approved as ties.)

**IMPORTANT.**—See Ordinance No. 32988, Page 184.

**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 lime stone 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

For mass concrete: 20 per cent. of its compressive strength in 28 days.

#### BRICK MASONRY.

**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 48 hours.

Lime mortar shall be composed of one part lime and three parts coarse, sharp sand.

Lime and cement mortar shall be composed of equal parts Portland cement and fresh slaked lime with as much coarse sand as is needed to form good mortar.

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

**SECTION 340.** Terra cotta, either plain or ornamental, shall be well burned and sufficiently stiffened with webs to keep it out of wind.

**SECTION 341.** 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 good lime and cement mortar .....	175
No. 5. Common brick, all grades, with Portland cement mortar .....	175
No. 6. Common brick, all grades, with Portland cement mortar .....	125
No. 7. Common brick, all grades, with good lime mortar.....	100

**SECTION 342.** 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 343.** Isolated piers of concrete, brick or other masonry shall not be higher than six times their smallest dimensions unless the above unit stresses are reduced according to the following formula:

$$P = C \left( 1.25 - \frac{H}{20D} \right)$$

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 times the least dimension. Weight of pier shall be added to other loads in computing load coming on the pier.

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

**SECTION 344.** The bond of all brickwork 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 arrangement approved by the Superintendent of Buildings, and provided further, that pressed brick facing, when not counted as part of the bearing wall, may be bonded or anchored in a manner approved by the Superintendent of Buildings.

**SECTION 345.** All brick laid up in cement, or lime and cement mortar, shall be thoroughly drenched immediately be-



ing 100 pounds per square foot shall be not less than the thickness given in Table II.

TABLE II.

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	
Basement	20	20	20	20	16	16	12	12
Stories	8	7	6	5	4	3	2	1

**SECTION 358.** Non-bearing brick walls over 30 feet long, but not over 60 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, shall be in the several stories not less than the thickness given in Table III.

TABLE III.

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	

See APPENDIX for diagram of wall thickness.

**SECTION 359.** Non-bearing brick walls over 60 feet long in non-fireproof buildings shall be not less than the thickness given in Table IV.

TABLE IV

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

**SECTION 360.** Bearing walls of brick over 30 feet long and not over 60 feet long in non-fireproof buildings shall be not less than the thickness given in Table V.

TABLE V.

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 361.** Bearing walls of brick over 60 feet long in non-fireproof buildings shall be not less than the thickness given in

TABLE VI.

6th	12						
5th	16	12					
4th	16	16	12				
3rd	16	16	12	12			
2nd	20	16	16	12	12		
1st	20	20	16	16	12	12	
Basement	24	20	20	16	16	12	
Stories	6	5	4	3	2	1	

**SECTION 362.** Brick walls for private dwellings not over three stories high shall be not less than the thickness given in Table VII.

TABLE VII.

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

**SECTION 363.** Tables I., II., III., IV., V., VI. and VII., mentioned in the foregoing sections, give the minimum required thickness of brick walls in inches as follows: (Tables have, for convenience, been placed after the several paragraphs to which they relate.)

**SECTION 364.** 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.

Recesses and openings may be made in walls, provided the thickness of the backs of such recesses be not less than 8 inches. No continuous vertical recess of more than 4 inches in depth shall be made in any 12-inch wall; and no recess of any kind shall be made in any 8-inch wall; and all such openings and recesses shall be filled with cement at each floor.

**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 12 inches thick if exposed to the weather must be laid up in cement or lime and cement mortar. Cornices, coping walls and walls subject to tensile stress 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.** Where the required wall thickness is augmented by masonry buttresses, as hereinafter defined, forming projections on either or both sides of a wall, then the required

thickness between buttresses may be reduced by one-half the thickness added at the buttresses, provided that no part of such wall shall be less than 8 inches thick.

The term buttresses shall be understood to include all piers and pilasters. Buttresses shall be at least one-tenth as wide as the spacing between them, and their distance apart shall not exceed 18 times the allowable thickness of the wall between 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 by metal anchors in every 5 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 18 times the thickness of the enclosing walls.

Where the story height is greater than 30 feet, the upper 15 feet of walls shall not be less than 16 inches thick, and the thickness shall be increased 4 inches at each interval of 15 feet of the height.

**\*SECTION 371.** The walls of buildings to be used for

\*This is a re-enactment of Sec. 71 of Ordinance 29262, approved July 3, 1912, and is qualified by a resolution of the Board of Appeal of Dec. 4, 1912, reading as follows: "That the Denison Wall Block be permitted to be used in building construction involving live floor loads of not more than 125 pounds per square foot, subject to the same requirements as are prescribed by ordinance for brick walls, and to such other provisions as the Superintendent of Buildings may require." The department has supplemented the above with the following regulations:

(1) Quality of Tile:

Tile shall be made of shale, fire or other clay that will burn to a good dense body without undue warping or checking, and must be burned to a degree of hardness which will insure an absorption of moisture of not more than 12 per cent by weight.

(2) Webs:

Vertical webs must be spaced not more than 4 inches apart, center to center, and must have a thickness of at least 20 per cent of their height.

(3) Bedding:

Tile must be so constructed as to preclude mortar beds of more than 4½ in. in width (the same as brickwork); and must be laid with broken joints both vertically and horizontally, and must be thoroughly bedded and solidly bonded.

(4) Position in Wall:

Tile must be so laid in walls that all vertical webs are in vertical alignment.

(5) Loads:

Tile walls must not be loaded to exceed a unit stress per square inch of net vertical web section of 200 pounds.

(6) Joist Bearings:

Where joists or other beams are seated on tile walls, they must have a bearing extending over at least 2 vertical webs, or the hollow portions of those tiles upon which the joists rest, must be solidly filled with concrete.

(7) Ordinance Requirements:

As to thickness of walls, corbels and offsets for joists and beams; anchorage to floors; bond for veneering; recesses, chases, etc.; and all other general requirements of the building ord-

places of habitation and not more than two stories in height and other buildings not over one story, if approved by the Superintendent of Buildings, may be of hollow clay tile or moulded concrete blocks not thinner than the thickness herein required for brick walls.

Filler walls in fireproof buildings not over 12 stories high may be of hollow clay tile of the same thickness as herein required for brick walls.

**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 brick or concrete .....	1.0
Concrete 1-3-5 .....	1.0
Reinforced concrete .....	.75

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.** Hollow walls shall be tied together with metal anchors placed not more than 3 feet apart horizontally and 20 inches apart vertically. If used as bearing walls the thickness shall be reckoned by the solid parts.

**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 3 feet, except as hereafter provided.

Buildings with roofs constructed as required in this ordinance for fireproof buildings need not be provided with fire-wall parapets. On street and alley lines the fire-wall parapets need not extend more than 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 5 feet from such street or alley lines by a coating of fireproof material at least 2 inches thick.

Firewall parapets shall not be less than 12 inches thick if built of brick, or of proportionate thickness if built of other masonry, except that where 8-inch walls are permitted in the top story of buildings and in buildings not over three stories high, the fire-wall parapets may be not less than 8 inches thick.

All fire-wall parapets shall be covered with weather-proof coping of metal, concrete or granite, or tiling set in cement mortar.

**SECTION 375.** All posts, columns, girders, floor joists and structural parts resting on masonry and transmitting thereto

nances for brick masonry; walls constructed of hollow burned clay tile blocks shall conform.

On May 24, 1917, the Board of Appeals ruled as follows: "That any shale, fire or other clay tile block fulfilling all other requirements of the building Ordinance, No. 31578, Section No. 371, and the note appended thereto, with the exception only that the mortar beds need not be limited to 4½ in width, may be used in building construction in the City of Seattle".



a greater load per square inch than is allowed by law shall be carried on stone, cast or wrought iron or steel bearing plates of sufficient size and thickness to distribute the load.

All posts or columns 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 fire-walls 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. 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 clearance 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 the wall thickness in total projection on either side of wall, nor 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 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 4 inches of brick or other masonry.

### STRUCTURAL TIMBER.

**SECTION 378.** Timber used for building purposes shall be sound, well manufactured, close grained, free from wind shakes or from dead, loose, decayed knots and other defects that will materially impair its strength and durability.

Wood used for studs, joists, posts, beams or trusses and other bearing parts may be of rough common stock; provided 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 a floor joist or girder.

See APPENDIX for table of safe load for fir beams.

**SECTION 379.** The maximum allowable stresses in pounds per square inch on actual sections of timber shall be as follows:

	Extreme Fiber Stress and Tension with the Grain	Compression With Grain	Compression Across Grain	Shear With Grain—Direct	Shear With Grain—Bending
Douglas Fir	1,600	1,600	400	200	150
Spruce	1,000	800	300	130	100
Western Hemlock	1,400	1,400	350	180	130

The safe loads of other timber shall be determined by the Superintendent of Buildings in accordance with tests made by the United States or any State University, or the City of Seattle.

**SECTION 380.** The unit stress on timber posts shall comply with the formula:

$$S = C \left( 1 - \frac{L}{70D} \right)$$

In which formula:

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

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

L equals length in inches.

D equals least diameter in inches.

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

Timber columns shall not be used in buildings of greater height than twice the width of the building nor in buildings over 80 feet in height.

**SECTION 381.** All buildings two stories or more in height and having wood posts and girders, shall have on the top of each post a cast or wrought iron or steel cap so constructed as to form a base for the next post above and a bearing for the girder, and of such size and thickness that the load will not exceed the allowable pressure per square inch on the bearing surface of the girder.

All girders built up of more than one piece shall be bolted together by 3/8-inch bolts placed not more than four times the depth of the girders apart, 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 2 inches thick from the under side, to prevent fire burning between the members.

**SECTION 382.** 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 4 feet in length in buildings designed to carry a live load of more than 50 pounds to the square foot, when not resting on a wall or post, shall be hung in steel or wrought iron hangers of suitable strength.



All tail beams more than 8 feet in length or required to carry a load of 1,600 pounds or more, shall be hung as required for headers or trimmers.

#### TIMBER DIMENSIONS.

**SECTION 383.** Wherever fractional thickness or size of lumber is specified, it is the finished size or thickness required for the given purpose. Wherever thickness of lumber or size of timber is given in whole numbers, standard commercial sizes are meant—and if such lumber is required or permitted to be dressed or sized, the standard rules of local lumber manufacturers are to apply. Allowable unit stresses are to be based on actual size of structural timbers as used.

### PART IV. CONCRETE AND STEEL

#### CEMENT.

**SECTION 401.** All cement used under the provisions of this part of the Building Code shall be Portland cement.

**SECTION 402.** All cements shall be tested as hereinafter prescribed. The making of all tests shall be in accord with the methods of testing defined by the American Society of Civil Engineers and published January 21, 1903, and as revised from time to time, except that in the case of routine tests, approximate methods may be substituted for the specified ones for determining normal consistency and time of setting, provided the results of these approximate methods are frequently checked and are found to accord with those of the American Society of Civil Engineers referred to above.

**SECTION 403.** The Board of Public Works or the Superintendent of Buildings may formulate regulations not inconsistent with the provisions of this ordinance to govern the inspection, sampling and testing of cement to be used within the City of Seattle, having due regard to the nature of the work for which the cement is to be used, the uniform or variable character of established brands of cement, the use of cement from newly established plants, and from time to time alter such regulations.

**SECTION 404.** All cement tests herein prescribed shall be made by an expert employed by the person having charge of the work, or by an expert employed by the City, and said expert shall file with the Superintendent of Buildings a verified certificate of the result of tests made by him, or the Superintendent of Buildings may require that all or any portion of the required tests be made by an expert employed by the City of Seattle.

**SECTION 405.** Specifications for cement to be used in reinforced concrete or other important construction may outline a scheme of inspection and tests for approval by the Superintendent of Buildings, but no outline or scheme shall be approved that is not in accordance with the standard specifications

and tests herein provided or that is in violation of any regulations of the Board of Public Works then in force.

**SECTION 406.** The result of all tests shall meet the following specifications for cement approximating the specifications drawn by the American Society for Testing Materials and adopted August 16, 1909.

**SECTION 407.** The specific gravity shall not be less than 3.10. Should the tests of cement as received fall below this requirement a second test may be made upon a sample ignited at low red heat. The loss in weight of the ignited cement shall not exceed 4 per cent.

**SECTION 408.** For fineness, the cement shall leave by weight a residue of not more than 8 per cent. on the No. 100 sieve, and not more than 25 per cent. on the No. 200 sieve.

**SECTION 409.** For time of setting, the cement shall develop initial set in not less than 30 minutes and shall develop hard set in not less than one, nor more than ten hours.—temperature of 70 degrees F.

**SECTION 410.** For tensile strength, the minimum requirements for briquettes one square inch in cross section shall be as follows and shall show no retrogression in strength within the period specified:

(Kept at a temperature of 70 degrees F.)

24 hours in moist air .....	175 lbs.
7 days (1 day in moist air, 6 days in water) .....	500 lbs.
28 days (1 day in moist air, 27 days in water) .....	600 lbs.

One part cement, three parts standard Ottawa sand.

(Kept at a temperature of 70 degrees F.)

7 days (1 day in moist air, 6 days in water) .....	200 lbs.
28 days (1 day in moist air, 27 days in water) .....	275 lbs.

**SECTION 411.** For constancy of volume, pats of neat cement about three inches in diameter, one-half inch thick at the center and tapering to a thin edge, shall be kept in moist air for a period of twenty-four hours. These pats shall then be exposed in an atmosphere of steam above boiling water, in a loosely closed vessel, for five hours, and shall remain firm and hard, and show no sign of distortion, checking, cracking or disintegrating.

**SECTION 412.** The sulphuric acid and magnesia analysis shall show the cement to contain no more than 1.75 per cent. of anhydrous sulphuric acid (SO<sub>3</sub>), nor more than 4 per cent. of magnesia (MgO).

**SECTION 413.** All cement shall be delivered upon 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, upon being opened, shows evidence of having set. All cement, after having been tested and approved, shall be stored in such manner as to be protected from the weather and not to come in contact with the ground or any moist surface.

**SAND.**

**SECTION 414.** All sand shall be reasonably coarse and sharp and shall not contain more than  $2\frac{1}{2}$  per cent. by weight of clay naturally adhering thereto and shall be free from loam or other foreign material. At least 95 per cent. shall pass a  $\frac{1}{4}$ -inch screen and not more than 33 per cent shall pass a sieve having thirty meshes per lineal inch. The graduation from coarse to fine shall be reasonably uniform.

**GRAVEL**

**SECTION 415.** All gravel shall be composed of hard durable rock and shall contain not more than  $1\frac{1}{2}$  per cent. by weight of clay naturally adhering thereto and shall be free from loam or other foreign material. Not more than 5 per cent, shall pass a  $\frac{1}{4}$ -inch screen, and the size of the particles shall vary uniformly from fine to coarse.

For mass concrete the maximum size must be capable of passing in any position through a 2-inch screen.

For reinforced concrete the maximum size must be capable of passing through a  $\frac{3}{4}$ -inch screen.

**SECTION 416.** In footings and foundation walls, heavy retaining walls and other massive work which will admit without detriment the use of aggregate of larger dimensions than herein specified, the same may be used under proper restrictions, provided application shall have been made to the Superintendent of Buildings and his approval obtained prior to such use but not otherwise.

**BROKEN STONE AND OTHER AGGREGATES.**

**SECTION 417.** Broken stone, when used in concrete work, must conform in regard to quality, size and cleanliness to the specifications for gravel.

**SECTION 418.** Crushed hard burned brick and clean crushed hard concrete from old structures, tile and vitrified clinker or slag may be used in lieu of gravel or broken stone under conditions approved by the Superintendent of Buildings. Cinder concrete shall not be used in reinforced concrete floor construction except for fill, and for short span slabs or arches between steel beams.

**MASS CONCRETE**

**SECTION 419.** Concrete shall be composed of Portland cement, clean fresh water and aggregate herein prescribed and shall have not less than one part of cement to the total number of prescribed parts of aggregates. The fine and coarse aggregates shall be mixed in the ratios hereinafter prescribed, or in ratios of greater density as shown by tests satisfactory to the Superintendent of Buildings. Concrete not less than 28 days old shall have the ultimate compressive strength hereinafter required for the several grades.

**SECTION 420.** Concrete shall, except as hereinafter provided, be mixed in a batch mixer of a type approved by the

Superintendent of Buildings, and equipped for the accurate measuring of materials.

**SECTION 421.** When the quantity of concrete to be used on any building is less than 100 cubic yards or when the conditions of the work make hand mixing preferable, concrete may be mixed by hand.

In any work where hand mixing is permitted, the method of mixing must comply with detailed specifications therefor submitted to and approved by the Superintendent of Buildings, and the resulting mixture shall conform to all of the requirements of this Ordinance.

**SECTION 422.** The separate ingredients of concrete shall be accurately measured and shall be thoroughly mixed until the cement is uniformly distributed and the mass is uniform in color and of such consistency as will flow into the forms, after being conveyed from the mixer, without separation of the coarse aggregate from the mortar.

**SECTION 423.** Retempering of concrete after its initial set shall be unlawful. Concrete that has set shall not be used as aggregate or otherwise remixed as an ingredient of concrete except as hereinbefore provided.

**SECTION 424.** The concrete shall be deposited uniformly in layers but shall not be deposited faster than it can be properly handled and spread into place. It shall be unlawful to deposit the material from a height into place, without properly remixing and spreading the same.

**SECTION 425.** The concrete must be deposited and thoroughly compacted in place before its initial set. In filling in concrete around reinforcing steel, the concrete must be worked continuously with suitable tools as it is put in place. In placing the concrete, the work shall be so laid out that partly set concrete will not be subjected to shocks from wheeling or handling material over it.

**SECTION 426.** Before placing new concrete in contact with any concrete already set, the contact surfaces of the old concrete must be made rough, cleaned of all laitance and loose material, and after drenching with clean water, must be slushed with neat cement grout immediately before placing the fresh concrete. The laitance must be removed before the concrete has set hard.

**SECTION 427.** All concrete walls shall be constructed as monoliths where practicable, that is, any section of a wall shall be deposited in one continuous operation. Where monolithic construction is impracticable, a recess 6 inches deep and of a width equal to one-third of the wall thickness shall be left at the end of each separate operation for the entire length of such work in all walls two feet or more in thickness. In thinner walls if not finished at one operation a bond satisfactory to the Superintendent of Buildings must be provided.

**SECTION 428.** Columns must be filled continuously for the entire length from the bottom of the same to lowest face of con-

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neeting girder, beam or slab. The concrete must be continuously puddled both inside of the hooping or ties, and outside next to the forms.

**SECTION 429.** When concreting is carried on in freezing weather, the material must be heated, and such provisions made that the concrete can be put in place without freezing. The use of frozen, lumpy sand, or stone depending on hot water used in mixing to thaw it out will be unlawful. All reinforced concrete shall be kept at a temperature above freezing for at least 48 hours after being put in place. All forms under concrete placed in freezing weather shall remain until all evidence of frost are absent from the concrete and the natural hardening of the concrete has proceeded to the point of safety.

**SECTION 430.** Concrete laid in warm weather shall be drenched with water twice daily, Sunday included, during the first week after being put in place.

**SECTION 431.** When it is necessary to deposit concrete under water, special care must be exercised to prevent the cement from being floated away, and to prevent the formation of laitance. The special methods to be adopted shall be approved by the Superintendent of Buildings.

## REINFORCED CONCRETE

**SECTION 432.** Reinforced concrete is concrete with metal so imbedded in it that the two materials co-operate to resist stress. Reinforced concrete construction shall conform to the regulations of this Code.

The concrete shall comply with the foregoing provisions as to materials and workmanship.

The steel shall be of a quality hereinafter prescribed.

**SECTION 434.** These regulations are based upon tests of the ordinary monolithic types of reinforced concrete consisting of slabs, beams, girders and columns. But it is not intended to exclude other types of reinforced concrete construction which meet the requirements of safety contained in this Code subject to the approval of the Superintendent of Buildings.

**SECTION 435.** Tests made by the authority or under the supervision of the Superintendent of Buildings to determine the efficiency of any proposed system or type of reinforced concrete construction shall be recorded in the permanent records of his office.

## THEORETICAL ASSUMPTION.

**SECTION 436.** Span lengths used in figuring moments shall be: For continuous members the distance between centers of supports.

For members simply supported or having fixed ends, the clear span plus the necessary bearing. Brackets shall not be considered as reducing the clear span in the sense here intended unless they are specially designed for the purpose.

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**SECTION 437.** Moments of external forces in beams, girders and slabs shall be calculated according to the actual conditions and number of spans and the necessary resistance provided.

When all spans are equal in continuous members the moment assumed at the middle of the span shall never be less than  $WL/12$  for intermediate spans and  $WL/10$  for end spans, where  $W$  is the load in pounds per lineal foot and  $L$  is the length of span in feet, the moment being in foot pounds.

In monolithic construction sufficient steel must be provided to prevent fracture of the concrete over the supports due to the negative moment, whether the steel is considered necessary to the strength of the structure or not.

**SECTION 438.** Rectangular slabs having a breadth not less than two-thirds of the length and supported on entire perimeter may be reinforced in both directions upon the assumption that the portion of total load carried by the transverse reinforcement  $T$ , and the portion carried by the longitudinal reinforcement  $L$ , are as given in the following table:

Ratios of length to breadth—	1.0	1.1	1.2	1.3	1.4	1.5.
Portion of Load $T$ —	.50	.59	.67	.75	.80	.83.
Portion of Load $L$ —	.50	.51	.33	.25	.20	.17.

Using the values thus obtained, each set of reinforcement is to be calculated as in slabs supported on two sides only, but the total amount of reinforcement thus determined may be reduced 25 per cent. by gradually increasing the spacing thereof from the third point to the edge of slab. The transverse reinforcement must be placed beneath the longitudinal reinforcement.

**SECTION 439.** Internal stresses are to be calculated by assuming that:

A plane section before bending remains plane after bending, so that the distribution of compressive stress due to flexure is rectilinear;

The tensile stress in concrete is to be neglected in calculating the moment of resistance of beams and other members subject to bending;

Steel and concrete in compression are stressed in proportion to their moduli of elasticity.

**SECTION 440.** Shrinkage and thermal stresses shall be provided by introduction of steel.

**SECTION 441.** Reinforced concrete calculations shall be based on the ultimate compressive strength of concrete " $U$ " in pounds per square inch and the ratio " $R$ " of the elastic modulus of steel to that of the different grades of concrete as given in the following table: (The last two grades are to be used in plain mass concrete only.)

Cement	Sand	Broken Stone or Gravel	U	R
1	1	2	2900	10
1	1½	3	2400	12
1	2	4	2000	15
1	2½	5	1750	18
1	3	5	1600	---
1	3	6	1400	---

**ALLOWABLE STRESSES.**

**SECTION 442.** When all the regulations of this Part are observed in the design, execution and inspection of reinforced concrete the material thereof may be stressed not to exceed the following limits:

Tensile stress in steel  $\frac{1}{3}$  its elastic limit, but not to exceed 18,000 lbs. per square inch.

Shearing stress in steel 12,000 lbs. per square inch.

Compressive stress in steel—

$E_s$   
—X  
 $E_c$

compression in concrete, where  $E_s$  is the modulus of elasticity of steel and  $E_c$  that of concrete.

**COMPRESSION**

**SECTION 443.** Axial compression in concrete  $22\frac{1}{2}$  per cent. of its ultimate strength.

Bending compression in extreme fiber of concrete  $\frac{1}{3}$  its ultimate strength.

When a column or other concrete rests upon concrete of larger area the allowable bearing value of the concrete at plane of support shall not exceed  $\frac{1}{3}$  the ultimate compressive strength of the concrete over the smaller area, nor  $\frac{1}{4}$  the ultimate compressive strength over the larger area.

**SHEAR**

**SECTION 444.** Direct shear in concrete 1-40 of its ultimate compressive strength; horizontal reinforcement will not be considered to resist shear; for beams with horizontal reinforcements only, the maximum allowable shearing stress shall be that prescribed for concrete.

For beams in which a part of the longitudinal reinforcement is bent up with due regard to the shearing stress, a higher value may be allowed, but not to exceed 60 lbs. per square inch.

For beams thoroughly reinforced for shear a value not exceeding 120 square inch may be allowed; for T-beams the width of the stem only shall be considered to resist shear.

The requisite amount of shear reinforcement may be calculated on the assumption that the entire shear on a section, less the amount allowed to be carried by the concrete, is carried by the steel in a length of beam equal to its depth.

**BOND.**

**SECTION 445.** Adhesion-bond for 1:2:4 concrete not exceeding the following in pounds per square inch of imbedded surface:

On plain round or square bars of structural steel .....	70
On plain round or square bars of high carbon steel .....	50
On plain flat bars in which the ratio of the sides is not more than 2 to 1 .....	50
On twisted bars having not less than one complete twist in a length of 8 diameters .....	100

On specially formed bars, not over one-quarter of the ultimate bond strength of such bars without appreciable slip, determined by tests to the satisfaction of the Superintendent of Buildings, but provided that in no case shall such allowable unit stress exceed 100 pounds. For other grades of concrete the adhesion-bond strength shall be assumed to be proportionate to the ultimate compressive strength of the concrete.

**DETAILS OF CONSTRUCTION.**

**SECTION 446.** Reinforcing steel must be completely enclosed by the concrete and be nowhere nearer the surface of the concrete than as follows:

Foundations, 4 inches.

Columns, girders and beams,  $1\frac{1}{2}$  inches. Slabs,  $\frac{1}{2}$  inch.

Exposed metal of any kind will not be considered a factor in the strength of any concrete structure, and a plaster finish applied over metal will not be deemed sufficient protection unless made of cement and of sufficient thickness and so secured as to meet the approval of the Superintendent of Buildings.

The outer one-inch thickness of concrete in columns and piers shall not be considered to carry any of the load.

**SECTION 447.** Joints in monolithic structures are to be avoided as far as practicable, but when necessary they must comply with the following regulations:

Concrete in members of a floor system may be joined at or near a section of minimum shear, usually in the middle of span, but not at a point of concentrated loading, and in columns at the bottom of the deepest intersecting floor members. Joints shall be at a right angle to the direction of the principal compressive stress.

Joints in longitudinal reinforcing of columns shall occur only at or near floors or other adequate lateral supports.

**SECTION 448.** The load from longitudinal reinforcement of columns shall be distributed into the footings by means of bearing plates or bars, or by sufficient imbedment in concrete.

Abutting ends of compression bars must have full bearing normal to axis at juncture, and be enclosed and grouted in suitable metal sleeves. Sheared bars will not be considered to meet this requirement. Column longitudinal bars designed to carry more than 12,000 pounds each shall have abutting ends.

Lap splice of tension or compression bars must be of sufficient length to develop the stress in steel at joint without overstraining the adhesion bond or shear strength of the concrete.



Adequate splice bars must be imbedded in the concrete of columns that have vertical steel with abutting ends. Such bars shall in no case be less than four in number nor less than one-half inch in least dimension.

**SECTION 449.** Adequate bond strength must be provided and the spacing of reinforcing bars must permit a free flow of the coarse aggregate of the enclosing concrete.

Anchorage for bars intended to compensate for deficient bond or shear shall be subject to the approval of the Superintendent of Buildings. Plain bars without anchorage shall not be considered suitable reinforcement for concrete in foundations or other concrete likely to remain wet.

The longitudinal steel in beams and girders shall be so disposed that there will be a horizontal thickness of concrete between the separate pieces of steel of not less than  $1\frac{1}{2}$  times the greatest diameter of the steel, and a vertical thickness of not less than one inch between horizontal rows of bars.

**SECTION 450.** The spacing of stirrups when they are required shall not exceed three-quarters of the depth of the beam. Stirrups must extend from top to bottom of beam, and loop or connect to horizontal reinforcement, and must have sufficient length to provide the necessary bond to develop the tensile stress in them. Stirrups shall be vertical unless rigidly attached to tension steel.

**SECTION 451.** Compression steel in beams must be anchored to the tension steel by means of stirrups or ties equivalent in section and frequency to the ties required for longitudinal reinforcement of columns.

**SECTION 452.** Slabs in monolithic structure shall be designed and reinforced as continuous over the supports.

Top finish of cement mortar shall not be considered in computing the moment of resistance of slabs, beams or girders.

**SECTION 453.** Effective bond must be provided at the junction of beam and slab. Transverse reinforcement extending well into the slab may be required to increase the bond when the principal slab reinforcement is parallel to the beam or girder.

**SECTION 454.** Where adequate bond between slab and web of beam is provided, the slab may be considered an integral part of the beam, but its effective width shall be determined as follows:

It shall not exceed one-third of the span length of the beam:

Its overhanging width on either side shall not exceed three-eighths the distance to the next beam, nor four times the thickness of slab. No part of the slab shall be considered a part of the beam unless integrally cast with it.

**SECTION 455.** If the neutral axis fall below the bottom of the slab, compensation for the lost compression area must be provided.

**SECTION 456.** Columns of reinforced concrete may be used in which the ratio of length to least side of diameter does not

exceed fifteen, but in no case shall the least diameter of column be less than 8 inches. Reinforced concrete columns having a slenderness ratio greater than 15 shall not be used except for small loads, and in such case the reduced unit stress shall be as approved by the Superintendent of Buildings.

**SECTION 457.** Longitudinal reinforcing rods must be tied together in such manner as will effectively resist outward flexure at intervals of not more than 15 times least diameter of the rod nor more than 18 inches, and no case to exceed the least diameter of the column. Every third tie in rectangular columns must run diagonally from corner to corner. The ties shall be not less than  $\frac{1}{4}$  inch in diameter or least dimension.

At least four longitudinal reinforcing rods shall be used in every reinforced concrete column, and they shall be equivalent in area to not less than one-half of 1 per cent. of the cross section of the column, provided that the total sectional area of reinforcing steel shall be not less than one square inch and that no rod or bar shall be smaller diameter or dimension than  $\frac{1}{2}$  inch.

In columns having longitudinal reinforcing only, the area of steel shall be limited to 5 per cent. of the cross section of the column.

**SECTION 458.** The effect of the eccentric loading must be considered in calculating the unit stresses of columns. Reinforced concrete columns built monolithic with beams or girders, or rigidly attached to them, must be designed to resist the maximum unbalanced moment that may be caused thereby in addition to the direct column loads.

**\*SECTION 459.** When the reinforcing consists of vertical bars and spiral hooping, the working stress of the concrete within the hooping may be taken at one-quarter of its ultimate strength plus the increase due to spiral hooping, provided:

That the amount of vertical reinforcing be not less than the amount of spiral reinforcing nor greater than  $7\frac{1}{2}$  per cent of the area within the hooping;

That the amount of spiral hooping be not less than one-half of 1 per cent., nor greater than 1.6 per cent of the area within the hooping;

That the pitch of spiral hooping be uniform and not greater than one-seventh of the diameter of the spiral nor greater than three inches;

That the spiral be accurately spaced by not less than three approved mechanical spacing bars or secured to the verticals not less than four times in each revolution in such manner as to insure the maintaining of its form and position;

That the verticals be so spaced that their distances apart on the circumference of spiral be not greater than 9 inches or one-eighth of the circumference nor less than  $1\frac{1}{2}$  diameters of the rods in the clear. All verticals must be securely held in place by wiring to the spirals, or otherwise as approved by the Superintendent of Buildings.

(At points where the hooping is spliced, stopped, or started, the free ends must be bent around a vertical rod and extended into the core a sufficient distance to develop the hooping.)



**SECTION 460.** In such columns, the action of the steel hooping may be assumed to increase the resistance of the enclosed concrete an amount equivalent to  $2\frac{1}{2}$  times the resistance that would be afforded by the same quantity of steel in the form of vertical reinforcement if imbedded in concrete stressed one-quarter its ultimate strength. It is assumed that this action does not alter the modulus of elasticity of the concrete.

No part of the concrete outside of the hooping shall be considered a part of the effective column section.

**SECTION 461.** No water, steam, soil or vent pipes nor any conduit shall be built into the structural part of any concrete column, beam or girder. Pipes of any kind if imbedded in floor slabs must be so disposed as not to impair the strength of the floor.

**SECTION 462.** The amount of reinforcement required for walls shall be sufficient to resist the stress occasioned by dead and live load, wind and earth pressure, and other acting forces without exceeding the allowable unit stresses prescribed in this Code, and the sectional form and thickness, unless specifically prescribed, shall be suitable for an effective structure for the purpose intended, subject to the approval of the Superintendent of Buildings.

**SECTION 463.** Curtain walls of reinforced concrete shall be not less than 6 inches thick for the upper two stories, 7 inches thick for the next three lower stories, 8 inches thick for the next four stories and 9 inches thick for all stories below the ninth story from the top, and shall be reinforced with vertical steel equivalent to 3-10 of 1 per cent. of the sectional area of the wall, spaced not more than 18 inches apart, and horizontal steel of equivalent sectional area, set not to exceed 18 inches apart, and wired to each vertical rod at each intersection. Vertical rods shall be spliced together with iron wire. Horizontal rods shall be wired to the columns. Additional rods shall be set around openings, the verticals being wired to the nearest horizontal bars and the horizontal bars at the top and bottom of openings shall be wired to the nearest vertical rods.

**SECTION 464.** Filler walls of reinforced concrete with horizontal and vertical reinforcing sufficient to resist a lateral pressure either inward or outward of 30 pounds to the square foot shall not be required to be more than 6 inches thick above the ground.

**SECTION 465.** All veneer facings on reinforced concrete construction shall be securely bonded and tied to the backing by metal ties, in the form of staples, not less than  $\frac{1}{8}$ -inch in diameter. The ties shall be bedded into the wall or structural part of the building not less than four inches with ends turned over to give a mechanical anchorage. Ties shall not be more than 2 feet 0 inches apart horizontally, and shall be placed in every piece of veneering, in every horizontal joint between courses of stone or terra cotta veneering and between every five courses of brick veneering, unless modified by special design submitted to and approved by the Superintendent of Buildings.

**SECTION 466.** Plans and specifications filed with application for permit must show or describe:

- The general arrangement and all essential details of the construction as prescribed in this Ordinance;
- The form work and temporary supports;
- The character, size and position of all reinforcing;
- The qualities, proportions and method of mixing the materials used in the concrete, and directions for placing the concrete;
- The dead and live loads to be carried.

### INSPECTION AND TESTS.

**SECTION 467.** Inspection during construction except as hereinafter provided shall be made by competent inspectors under the supervision of an engineer or architect representing the owner, and shall cover all essential matters relating to the work, including the following:

- Materials:
  - The correct construction and erection of the forms and supports and cleaning the forms of all debris;
  - The sizes, shapes, arrangement and fastenings of the reinforcement;
  - The proportioning, mixing and placing of the concrete;
  - The strength of concrete by tests of standard test pieces made on the work;
  - Whether the concrete is sufficiently hardened before the forms and supports are removed; it being understood that the time of removal is always subject to the approval of the Superintendent of Buildings;
  - Prevention of injury to any part of the structure by and after the removal of forms;
  - Comparison of dimensions of all parts of the finished structure with the plans.

**SECTION 468.** The Superintendent of Buildings may from time to time require of the Inspectors, the Architect, or Engineer in charge, satisfactory written reports of the inspection of any part of the work upon blank forms supplied for the purpose, or other satisfactory evidence of thorough and efficient supervision. Inspections and reports made by the owner's representatives shall be supplementary to and not a substitute for work performed by the city's authorized inspectors.

### REINFORCED CONCRETE NOT UNDER EXPERT INSPECTION.

**SECTION 469.** Reinforced concrete work complying with these regulations in all other respects but not under expert inspection and supervision as hereinbefore prescribed may be permitted; but in such case the allowable unit stresses in the concrete as defined herein shall be reduced 25 per cent.

**SECTION 470.** Permission to erect does not in any manner accept reinforced concrete construction until after tests of the actual construction have been made to the satisfaction of the Superintendent of Buildings.

## LOAD TESTS APPLIED TO STRUCTURES:

**SECTION 471.** All reinforced concrete construction, when required by the Superintendent of Buildings, but in no case within 28 days after construction, shall be subject to a load test which shall show that the construction will sustain a load of twice that for which it is designed without any sign of failure, or in the case of beams, girders or floors without deflecting more than .00143 of the span.

## FORMS.

**SECTION 472.** Forms must be substantial and unyielding, so that the concrete shall conform to the designed dimensions and contours, tight enough to prevent leakage of mortar, clean and cleared of all debris and thoroughly wet before receiving the concrete.

**SECTION 473.** Forms must be so constructed as to admit of easy inspection and must not be filled with concrete prior to inspection and approval by the Superintendent of Buildings unless expressly authorized by him. Such inspection shall be made within 36 hours after notification that work is ready for inspection.

**SECTION 474.** In no case shall the props and shores used in reinforced concrete construction be removed from under floors and roofs in less than two weeks, except as is provided herein. Column forms shall not be removed in less than four days. The centering from bottom of slabs and sides of beams and girders may be removed after the concrete has set for one week, if the floor has obtained sufficient hardness to sustain the dead weight of the said floor. No load or weight shall be placed on any portion of the construction until the concrete has fully set and the centers have been removed.

## REINFORCEMENT.

**SECTION 475.** The fabrication, shape, size and position of reinforcement must conform to the approved plans. Effective means must be employed to secure the steel against displacement.

## PROTECTION FROM INJURY.

**SECTION 476.** Care and effective supervision must be exercised to protect new concrete from injury of any kind.

## STRUCTURAL STEEL AND IRON. GENERAL REQUIREMENTS.

**SECTION 477.** All structural wrought or cast iron or steel, in quality, requirements of tests, workmanship and in assemblages and interconnections of shapes shall comply with standard specifications of the Association of American Steel Manufacturers as given in the latest hand books of the respective standard manufacturers (See Appendix.)

Wrought iron shall be fibrous, tough and ductile.

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

Structural steel shall be made either by the Bessemer or open hearth process.

## ALLOWABLE STRESSES.

**SECTION 478.** The maximum allowable stresses in pounds per square inch in steel and iron shall not exceed the following:

	Rolled Steel.	Cast Steel.	Wrought Iron.	Cast Iron.
Tension on net section .....	16,000	16,000	12,000	.....
Compression on gross section .....	16,000	16,000	12,000	10,000
Bending on extreme fibers .....	16,000	16,000	12,000	.....
Bending on extreme fibers tension .....	.....	.....	.....	3,000
Bending on extreme fibers compression .....	.....	.....	.....	10,000
Bending on extreme fibers of pins .....	24,000	.....	.....	.....
Shear: shop driven rivets and pins .....	12,000	.....	.....	.....
Shear: field driven rivets .....	10,000	.....	.....	.....
Shear on rolled steel shapes .....	12,000	.....	.....	.....
Shear plate girder webs, gross section .....	10,000	.....	.....	.....
Shear on brackets .....	.....	.....	.....	2,000
Bearing, shop driven rivets and pins .....	24,000	.....	.....	.....
Bearing, field rivets .....	20,000	.....	.....	.....

## COLUMNS, STEEL AND IRON.

(See also Section 485.)

**SECTION 479.** The allowable compressive stresses per square inch for columns shall be determined by the following formula:

$$\text{Steel columns, } 16,000 - 70 \frac{L}{R}$$

But shall not exceed 14,000 pounds.

$$\text{Wrought iron columns, } 12,000 - 60 \frac{L}{R}$$

$$\text{Cast iron columns, } 10,000 - 60 \frac{L}{R}$$

In the above formulas:

L equals length in inches.

R equals least radius of gyration in inches.

For steel columns filled with, and encased in concrete extending at least 3 inches beyond the outer edge of the steel, where the steel is calculated to carry the entire live and dead load, the allowable stress per square inch shall be determined by the following formula:

$$18,000 - 70 \frac{L}{R}$$

But shall not exceed 16,000 pounds.

GEORGE BOOLE  
President

GEORGE W. BOOLE  
Vice Pres. & Secy.

FRANK J. SPECKERT  
Treasurer

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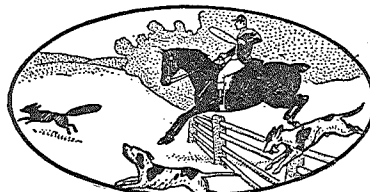
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For steel columns filled with, but not encased in concrete, the steel shall be calculated to carry the entire live and dead load. In this case the above formula may be used, but the allowable stress shall not exceed 14,000 pounds.

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

**SECTION 480.** For stresses produced by wind forces combined with those from live and dead load, the unit stress may be increased 50 per cent. over those given above; but the section shall not be less than required if wind forces be neglected.

**SECTION 481.** The length of rolled steel columns shall not exceed 120 times the least radii of gyration, except struts for wind bracing only may be not to exceed 150 times the least radius of gyration.

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

### TENSION MEMBERS.

**SECTION 482.** In proportioning tension members the diameter of rivet holes shall be taken  $\frac{1}{8}$  of an inch larger than the nominal diameter of the rivet.

In proportioning rivets the nominal diameter of the rivet shall be used.

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

### PLATE GIRDERS.

**SECTION 483.** Plate girders shall be proportioned either by the moment of inertia of their net section or by assuming that the flanges are concentrated at their centers of gravity and a unit stress used such that the extreme fiber stress does not exceed 16,000 pounds per square inch, in which case  $\frac{1}{8}$  of the gross section of the web, if properly spliced, may be used as flange section.

The gross section of the compression flanges of plate girders shall not be less than the gross section of the tension flanges; nor shall the extreme fiber stress in the compression flange of any beam or girder of a longer length than 25 times the width exceed in pounds per square inch:

$$20,000 - 160 \frac{L}{B}$$

In which formula L equals unsupported length and B equals width of flange.

The flanges of plate girders shall be connected to the web with a sufficient number of rivets to transfer the total shear at any point in a distance equal to the effective depth of the girder at that point combined with any load that is applied on the flanges.

**SECTION 484.** The Superintendent of Buildings may at any time require the owner to engage recognized experts to supervise the mill, shop and field work on structural steel, who shall file certified 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 satisfactory proof that it is up to the accepted standard.

#### LATTICE AND BOX COLUMNS.

**SECTION 485.** When the vertical reinforcement of a structural column is of box shape, with lattice or batten plates of such form as to permit its being filled with and encased in concrete, the concrete may be stressed not to exceed  $\frac{1}{4}$  its ultimate compressive strength, provided that no shape of less than one square inch section be used and that the spacing of the lacing or battens be not greater than the least width of the column. The unit stress in the steel shall be determined from the concrete stress as in ordinary reinforced concrete columns.

#### REINFORCING STEEL.

**SECTION 486.** The bending and elongation of steel used in reinforced concrete construction shall conform to the following requirements:

Steel having a diameter of  $\frac{3}{4}$  of an inch or less shall be capable of bending cold 90 degrees over a diameter equal to twice the thickness of the piece without fracture; steel more than  $\frac{3}{4}$  inch in diameter shall be capable of bending cold to 90 degrees over a diameter equal to three times the diameter of the piece.

The materials of reinforcement shall be of such form that it will not elongate under working stress to exceed 1-1500.

**SECTION 487.** Reinforcing steel used in reinforced concrete construction shall not be painted, but shall be free from all mill scale and loose rust.

#### SKELETON FRAMING.

**SECTION 488.** Skeleton framing is a form of building construction wherein all external and internal loads and stresses are transmitted to the foundation by a skeleton or framework of metal or reinforced concrete and wherein the wall loads as well as floor loads are transmitted through beams or girders to the columns at each floor level wherever it is practicable to do so.

All wall supports must be wide enough for the purpose of stability and must have the requisite bearing area for the material to be supported without exceeding the unit stresses allowed by this Code.

**SECTION 489.** In reinforced concrete skeleton construction, all plates, angles or other structural shapes required to carry wall facings shall be bolted or otherwise secured by approved methods to the backing in such manner that the weight of the facing will be directly borne by the skeleton framework.

**SECTION 490.** In metal frame skeleton construction the beams and girders shall be riveted to each other at their respective junction points. If columns made of rolled iron or steel are used, their different parts shall be riveted to each other, and the beams and girders shall have riveted connections to unite them with the columns.

If cast iron columns are used, each successive column shall be bolted to the one below it by at least four bolts not less than  $\frac{3}{4}$ -inch in diameter, and the beams and girders shall be bolted to the columns. Bolt holes in flanges for connection of columns to columns shall be drilled.

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

At each line of floor or roof beams, lateral connections between the ends of the beams and girders shall be made in such manner as to connect rigidly the beams and girders with each other in the direction of their length.

Wherever it is found impossible to rivet connections as herein prescribed and such connections are bolted, cold rolled or turned bolts of exact fit and diameter in reamed holes may be used in place of rivets, with the same allowable stresses as field driven rivets.

**SECTION 491.** All buildings over eight stories high shall be of skeleton construction. All buildings over twelve stories high shall be of steel frame skeleton construction.

#### ERECTION OF STEEL.

**SECTION 492.** All structural members which are temporarily bolted together shall be well bolted in every alternate hole.

**SECTION 493.** All structural steel and iron work must be firmly braced and held in place during erection and until it is finally riveted up and secured in its correct permanent position by metal braces or by being enclosed with masonry. Permanent steel braces shall be used in the lower stories of all buildings over 11 stories high to keep the frame erect. The number of stories so braced, independently of the requirements of wind bracing shall be not less than 2 (N-10), in which N is the total number of stories. Buildings over 20 stories high shall be braced in all stories.

**SECTION 494.** All steel trusses shall be riveted. All trusses shall be held rigidly in position, both temporarily and permanently, by effective lateral and sway bracing.

#### DETAILS AND WORKMANSHIP.

**SECTION 495.** All structural details and workmanship shall be in accordance with accepted engineering practice.

#### PAINTING OF STRUCTURAL STEEL.

**SECTION 496.** All metal shall be clean and shall be free from loose rust and scale, and all metal except that to be embedded in concrete shall be protected with at least two coats of metal protecting paint.

## PART V. FIRE HAZARD REGULATIONS.

### DIVISION WALLS.

**SECTION 501.** All buildings to be used as stores, factories, workshops, warehouses or office buildings, except as hereinafter provided, shall be divided by fire walls, so located that the floor area in any division so formed shall not exceed the number of square feet indicated in the following table:

	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	13,500	9,000	7,200

### CONCESSIONS ALLOWED WHERE AUTOMATIC SPRINKLERS ARE INSTALLED.

**SECTION 502.** Ordinary store buildings of fireproof construction having all elevators, stairways and other openings through the floors enclosed with walls of brick, concrete or other fireproof construction, and with approved automatic self-closing fireproof doors at all openings into such enclosures are not restricted as to the undivided floor area, provided each such building is equipped throughout with an approved automatic sprinkler system constructed as specified in the following section.

The occupancy of unrestricted and other large undivided floor areas including the disposition of materials and merchandise shall be subject to inspection and reasonable regulations by the Fire Marshal and Chief of Fire Department.

**SECTION 503.** The allowed area between fire walls in restricted buildings may be increased 100 per cent. when the height of the building does not exceed the height permitted in this Code for such buildings, and 50 per cent. when the height of the buildings exceeds such limits, if each division thereof is equipped with an approved automatic sprinkler system constructed to operate at a temperature of 165 degrees Fahrenheit, and so designed as to protect every square foot of floor area, including closets, halls and stairs.

Such system shall be connected to a tank or tanks, so located as to develop a gravity pressure or head of at least 10 pounds per square inch at the sprinkler heads in the uppermost story of the building, and having a capacity of one gallon for every square foot or area of the ground or first floor of the building, which tank or tanks shall be kept constantly filled with water. At each division of the building there shall be connected with the main supply pipe of the sprinkler system a pipe at least 4 inches in diameter with suitable check valves, which latter pipe shall run to a convenient point outside the building, end in a two-way automatic Siamese connection with National Standard 2½-inch coupling threads.

**\*SECTION 504.** In Fireproof, Mill or Ordinary Masonry Buildings, all required fire walls shall be constructed of masonry, and in Frame Buildings shall be constructed either of masonry or other approved fireproof construction or of solid wood not less than 3½ inches thick, as required for partitions in Mill Buildings. All such fire walls shall be built from the ground up to a point 3 feet above the roof and shall be continuous. The number and size of openings through such walls shall be minimized and all openings shall be protected on both sides of the wall by automatic fire doors of approved design and construction.

\*(This section is construed to apply to those buildings referred to both in Section 501 and Section 506.)

**SECTION 505.** The provisions relating to fire walls shall be construed liberally in the case of sawmills, grain elevators and similar buildings, with a due regard to the nature of the occupancy and the business necessarily conducted therein; but in case the allowed area between fire walls be increased, other reasonable substitute requirements in the interest of public safety may be prescribed by the Superintendent of Buildings.

Specifications made under authority of Section 505 for frame buildings used for manufacturing purposes, and of larger undivided areas than are allowed by Section 501.

1. The roof sheathing and under flooring shall be 2x6 T & G.
  2. No truss members, beams or joist shall be less than 6" in least dimension.
  3. No brace shall be smaller than 4"x6".
  4. The post shall be not smaller than 8x8.
  5. If the building is over 200' long roof curtains constructed of 2x6 T & G shall be provided every 100'.
  6. If the building is over 50' in height the roofing shall be gravel topped or of equivalent fire resisting qualities.
- If the above mentioned buildings are in the third district, shall, in addition to the above requirements, have:
1. Gravel topped roof or equivalent.
  2. Outside sheathing of 2x6 T & G on 4"x4" girts.
  3. Posts not smaller than 10x10.

The above mentioned buildings shall also comply with the requirements of Section 956 and all other sections of the Building Code.

### PLACES OF HABITATION AND REFUGE AND DETENTION.

**\*SECTION 506.** Excepting dwellings all buildings more than two stories in height, used wholly or partly as places of habitation or of refuge and detention, unless they be of fireproof construction, shall have fire walls not more than 60 feet apart.

No joists, girder or floor shall pass through or into any solid wood fire wall, and no opening shall be made through such wall other than those required for the continuation of public halls or corridors.

All solid wood fire walls must be lathed and plastered or metal covered on both sides. All fire walls shall continue through attic spaces.

Every frame building used for the purpose indicated in this section shall have its fire walls of masonry or other approved fireproof construction not more than 120 feet apart.

\*(The first paragraph of this section is interpreted to require divisions of not to exceed 7,200 square feet each; and the last paragraph to require divisions not exceeding 14,400 square feet each.)



**SECTION 507.** In case large rooms in any story prevent the continuity of any required fire wall, such wall may be omitted on that floor if the floor above and below the said large rooms be constructed so as to be fire resistive as approved by the Superintendent of Buildings.

**SECTION 508.** Where required fire walls cross halls or passageways, all openings shall be provided with approved automatic fireproof doors, which will operate at a temperature of 165 degrees Fahrenheit.

**SECTION 509.** All attics or unfinished spaces between the ceiling of the top story and the rafters of any non-fireproof building shall be divided into compartments or rooms, having a floor area of not to exceed 3,600 square feet, by partitions of dry shiplap or matched lumber not less than  $\frac{7}{8}$ "x6" with no loose knots and made double with broken joints, or by fireproof or incombustible stud partitions. Each of such compartments, or not separated by division walls, shall be connected with all adjoining compartments by doors of the same materials as the partition, and not less than 2'0" in their smallest dimension. Such doors shall be kept closed and so fastened as to be opened from either side without the use of a key.

#### AUTOMATIC FIRE DOORS.

**SECTION 510.** All buildings shall have on each side of all openings through division walls, or through exterior or party walls into adjoining buildings, wooden tin-clad self-closing fire doors, constructed of two thicknesses of matched dry lumber  $\frac{7}{8}$ -inch thick, crossed at right angles, and nailed with clinched nails and completely covered with tin plates not larger than 10"x14", with lock joints hammered down over all nail heads, and with all hinges, hangers, latches and appurtenances bolted to the door after tinning. All tracks and stops shall be bolted through the wall or securely into the wall with expansion bolts, and all eyes or lugs shall be built into the wall. All such doors shall be hung on iron or steel eyes, hinges or tracks securely fastened to the wall, independently of any woodwork.

Every sliding self-closing fire door shall be hung with iron or steel trucks on an iron or steel track inclined  $\frac{3}{4}$  inches to 1'0" and shall when closed rest not more than  $\frac{1}{2}$  inch from the wall, and shall overlap on the top and sides at least 3 inches against brick, stone, concrete or iron; provided that horizontal iron or steel tracks may be permitted by the Superintendent of Buildings if in his judgment the closing counterweight or other automatic closing device provided is equal to or better than the inclined track arrangement herein described.

Swinging self-closing fire doors shall shut into a brick rabbet in the wall or into a 3"x3"x $\frac{1}{4}$ " angle iron rabbet secured through the wall by 1 $\frac{1}{4}$ "x $\frac{1}{4}$ " iron bars, spaced not over 24 inches apart, or shall overlap the wall not less than 4 inches at sides and top.

Every such sliding or swinging door shall at all times be provided with an efficient self-closing device, which will operate at a temperature of 165° Fahrenheit.

#### FIRE SHUTTERS.

**SECTION 511.** Whenever any buildings shall be provided with exterior fire shutters above the first story, such shutters shall be securely fastened to the building, and so hung as to be readily opened or closed from either the inside or the outside. All fire doors and shutters to openings on the first floor shall be securely hung, and at least one of such fire door shutters on the front, one on either side, if any, and one in the rear shall be so fastened that it can be opened from the outside by fireman.

#### STAND PIPES.

**SECTION 512.** Every building 4 stories or more in height above the lowest street or alley grade, shall have at least one galvanized wrought iron stand pipe for each separate division of the building as may be determined by the Fire Marshal. Such pipe shall be situated not more than 1' 0" from the fire escape on an exterior wall and shall extend from 5'0" above the ground to and above the roof. At each floor and on the roof there shall be branches with good 2 $\frac{1}{2}$ -inch valves and National standard 2 $\frac{1}{2}$  inch 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 windows.

The dimensions of stand pipes shall be as follows: 4 inches in diameter for 4-story buildings, with a 2-way inlet at the bottom. If a building is from 5 to 10 stories in height, the portion of the stand-pipe on the 4 upper stories shall be 4 inches in diameter and on the stories below 5 inches in diameter, with a 3-way inlet at the bottom. If a building is over 10 stories in height, the portion of the standpipe on the 4 upper stories shall be 4 inches in diameter, the portion on the 6 stories immediately below them shall be 5 inches in diameter and on all the stories below the upper 10 the standpipe shall be 6 inches in diameter, with a 4-way inlet at the bottom.

Each standpipe shall be fastened securely by bolts through the wall in a manner approved by the Superintendent of Buildings.

#### BASEMENT SPRINKLERS.

**\*SECTION 513.** In every cellar, basement or sub-basement in the first or second building district, except in places of habitation, which is used for the storage of combustible goods or merchandise, there shall be provided an approved automatic sprinkler system so constructed as to protect every square foot of floor area, including spaces under sidewalks, constructed to operate at a temperature of 165° Fahrenheit, connected at all times with a water supply under pressure.

\*(For storage cellars, basements and sub-basements in the third and fourth building districts, Section 184 of Ordinance 17240 requires that "there shall be provided through the center of each division of such cellar, basement or sub-basement, and also every 40' across the width where such cellar, basement or sub-basement is not subdivided by brick, stone or concrete walls without openings, three 2 $\frac{1}{2}$ " interior diameter iron pipes, each ending in a turn to which is attached a distributing nozzle, one of which nozzles shall be located midway between the front and rear walls



There shall be connected with the main supply pipe of the sprinkler system a pipe at least 4 inches in diameter 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.

#### AUTOMATIC SPRINKLER IN WAREHOUSES AND FACTORIES.

**SECTION 514.** Every building over 5 stories high used as a warehouse, factory or workshop, or store, shall be completely equipped throughout with an approved automatic sprinkler system which shall include the outside automatic connection for the fire department as described in the preceding section.

#### ACCESS TO WATER AND GAS.

**SECTION 515.** Every building, except dwellings occupied or intended to be occupied by not more than two families, shall be provided with an enclosure or enclosures, constructed of incombustible material, located immediately within the curb of and beneath the sidewalk in front of said building.

Access into such enclosure shall be afforded by an opening in its top, which opening shall have a suitable locked iron cover set in the sidewalk. Fastenings to all such covers shall be identical and shall conform to sample in the office of the Chief of the Fire Department. Such enclosures shall contain gates, valves or other means of controlling all water and gas services for said building, clearly tagged or marked.

#### PLASTERING.

**SECTION 520.** Wherever lath and plaster is required, the same shall extend to the floor and to the stair carriages, and wood lath shall be not less than ¼ inch apart.

Whenever any building is ready to lath, the owner, contractor or other person in charge of the work shall notify the office

of such cellar, basement or sub-basement, one midway between the central nozzle and the front wall and one midway between the central nozzle and the rear wall, and which lines of pipe shall be so arranged that they shall project together through the wall of the building above the sidewalk or pavement a sufficient distance to allow the Fire Department to connect hose therewith and each shall be provided with an elbow, a Seattle standard 2½" female coupling, a screw plug and chain, the pipe connecting with the nearest nozzle to be placed on the right; that with the central nozzle in the center; and that with the farthest nozzle on the left; provided, that in any cellar, basement or sub-basement where the said system of three pipes with distributing nozzles is installed in the center of each division, or every 40' across the width where not subdivided, but where said pipe system is directly connected with a main of the city water system, and properly maintained, and where in any cellar, basement or sub-basement there is a complete automatic sprinkler system so constructed as to protect every square foot of floor area and to operate at a temperature of 165° Fahrenheit, connected with a water supply at all times under pressure, and with a two-way Siamese connection located at some point outside the building convenient for the use of the Fire Department and fitted with Seattle standard female couplings, screw plugs and chains, the provisions of this section shall not apply.")

of the Superintendent of Buildings of such fact, giving the number of the building permit under which work is being performed, and it shall be the duty of the Superintendent of Buildings within 36 hours after receiving such notice to inspect the building and ascertain whether or not firestops, bridging, chimneys, fireplaces and other parts which would be concealed by lath and plaster have been constructed in accordance with the provisions of this Code, and no lathing shall be done on such building within 36 hours after the giving of the notice above provided for, unless the building has been sooner inspected and approved by the Superintendent of Buildings.

**SECTION 521.** If openings to a basement occur under a store front or show window, the floor of the show window and the openings under the same shall be of the same class of construction as the store floor and first story openings, or equivalent thereto.

**SECTION 522.** The walls of all interior light shafts or courts less than 10'0" across in any direction in non-fireproof buildings shall be covered with metal lath or plaster board and hard plaster not less than ½ inch thick, or with sheet metal with locked joints, or lapped 1½ inches.

#### METAL LINED CHUTES.

**SECTION 523.** All clothes chutes, dumb waiters, wire shafts, pipe shafts, and other enclosed spaces extending from one story to another in non-fireproof buildings other than dwellings shall be built of metal or lined on the inside with sheet metal with locked joints or lapped 1½" and shall have a tight-fitting metal lined covering or door over each opening. No woodwork of any such chute or shaft shall be less than 2 inches from any masonry smoke flue or less than 12 inches from any metal smoke flue or pipe.

#### INFLAMMABLES ON ROOF.

**SECTION 525.** It shall be unlawful for any person to leave uncovered or in any way exposed any tar, tar paper, resin, felt or woodwork on any roof in the First, Second or Third Districts.

#### SMOKE VENTS.

**SECTION 526.** Every building more than 2 stories in height except dwellings, shall be provided with ventilators having a clear opening above the roof equal to ¼ of 1% of the ground area of the building, for the escape of smoke in case of fire. Such ventilators shall be located over an elevator, stairway or main corridor, and shall be provided and connected with an efficient device whereby they can be readily opened and closed from the top floor of the building.

No sheet metal or other vent ducts shall discharge into an attic or other space formed or covered or enclosed by combustible materials, or into any room or space in which combustible articles are kept or stored. All such ducts in buildings having combustible roofs shall be carried up above such roofs as required in the case of smoke flues.

## CHIMNEYS, SMOKESTACKS AND FLUES.

**SECTION 527.** All chimneys, and all vent flues over ranges having hoods shall be built of good brick, stone, or approved concrete chimney blocks laid in mortar with flush struck joints, or of concrete not less than 4 inches thick, except that terra cotta flues may be used in unfinished one-story buildings.

Chimney blocks made of Portland cement, clinker sand or other approved sand, and crushed vitrified clinkers in the proportion of not less than one part of cement to eight parts of the above mentioned aggregate, and the blocks made with a 3-inch shell or thicker, with rabbeted horizontal joints and no vertical joints, shall be considered equivalent to 4-inch brick chimney flues when used for service to stoves, ranges, and fireplaces, and for service from house furnaces when 12 feet 0 inches or more from the point of entrance of smoke-pipe from furnace; provided, however, that no such concrete chimney block shall be used with a flue larger than 8 inches by 12 inches.

**SECTION 528.** In all buildings in the First, Second and Third Building Districts, and in places of habitation other than dwellings in all districts, all chimneys and all vent flues over ranges having hoods shall have terra cotta flue linings not less than one inch thick, or shall have walls not less than six inches thick.

**SECTION 529.** All interior chimneys not lined with terra cotta shall be plastered on the outside after inspection and approval except that portion above the roof. The inside of such chimneys or flues shall not be plastered.

**SECTION 530.** No chimney flue shall have less than one square inch of sectional area to each  $1\frac{1}{2}$  square inches of sectional area of the smokepipes entering it.

**SECTION 531.** All chimneys not built from the ground shall be supported directly by floor timbers of ample strength or from the ground by posts not less than  $3\frac{1}{2}$  inches in least dimension.

Chimneys resting on wood shall have at least three courses of solid brickwork at the bottom.

**SECTION 532.** All floor beams, joists and headers shall be kept at least  $1\frac{1}{2}$  inches clear of chimneys, and the space between the wood and chimneys shall be filled solid with gauged mortar resting on a course of brick set out one 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.

**SECTION 533.** Thimbles for smokepipes shall be not less than six inches from any plastered partition or 12 inches from any wood partition, or ceiling or floor. Brick shall be corbelled out to the face of the furring at least four inches around the thimble; provided, however, that the brick may be left one-half an inch back from the face of the furring if sheet iron or metal lath with a hole cut  $1\frac{1}{2}$  inches larger than the thimble be put on the furring to cover the brickwork and prevent cracking of plaster.

**SECTION 534.** In racking over flues or chimneys, no course of brick shall be offset more than one-half an inch, and no racking shall be made so that the unsupported overhang shall be more than one-third of the base of the chimney. No nails shall be driven into any chimney.

**SECTION 535.** A chimney exceeding in height above the roof five times its least dimension shall, unless laid in cement mortar or built of reinforced concrete, be braced with wrought iron or steel in a manner approved by the Superintendent of Buildings.

Chimneys laid in cement mortar, or constructed of reinforced concrete, when carried to such a height that bracing is deemed advisable by the Superintendent of Buildings, shall be braced as above provided.

**SECTION 536.** Except on fireproof buildings, or in case of chimneys penetrating the ridge of a roof, the tops of all chimneys shall be at least 2 feet 0 inches from any roof surface measured in a vertical direction and 12 feet 0 inches measured in any other direction.

Substantially guyed sheet metal extensions may be used to secure the height herein required if placed on a chimney of masonry 5 feet 0 inches or more in height above a roof, provided such metal extension is galvanized or well painted with asphaltum.

**SECTION 537.** Except in dwellings, all brick flues for boilers not exceeding 15 horsepower, and for furnaces and ovens shall be 8 inches in thickness to the height of 25 feet 0 inches above the smoke inlet. All brick flues for boilers exceeding 15 horsepower shall be not less than 12 inches in thickness to the height of 25 feet 0 inches above the smoke inlet, or lined with terra cotta with joints well cemented and having walls not less than 8 inches thick.

**SECTION 538.** All chimneys having 400 or more square inches of sectional area shall be lined with fire brick laid in fire clay at least 2 feet 0 inches below and 6 feet 0 inches above the entrance of any smokepipe.

## METAL SMOKESTACKS.

**SECTION 539.** All iron smokestacks from boiler furnaces shall extend 15 feet 0 inches above the highest point of the roof of any building within 50 feet 0 inches of such smokestack, and shall, when wood is used for fuel, and the draft is either a forced or direct natural draft, be provided with spark arrestors having not more than  $\frac{1}{4}$ -inch mesh.

Iron smokestacks less than 12 inches in diameter shall not be nearer than 16 inches to any woodwork and if more than 12 inches in diameter shall have an additional distance from all woodwork of  $\frac{1}{4}$ -inch for each additional inch in the diameter of the stack up to 36 inches.

Iron or steel smokestacks from boiler furnaces or coffee roasters, where passing through any floor, ceiling or roof, shall be provided with a metal jacket 12 inches from the stack and secured to the floor, ceiling or roof. Such a jacket shall ex-

tend not less than 12 inches above each such floor, ceiling or roof, and the one at the roof shall be provided with a metal umbrella covering not less than 12 inches above the top of the jacket.

Iron stove pipes may be used in place of chimneys in tents, houseboats and isolated small unfinished one-story buildings if properly protected where they pass near wood or other combustible material.

**SECTION 540.** Iron cupola chimneys of foundries shall extend at least 10 feet 0 inches above the highest point of any roof within 50 feet 0 inches of such cupola and shall not be placed within 2 feet 0 inches of any woodwork.

#### FLUES.

**SECTION 541.** No iron, terra cotta or earthen pipe smoke flue shall be so erected as to project through an exterior wall or window, or through any skylight.

**SECTION 542.** All flues in party walls shall be separated by at least 4 inches of masonry throughout the entire length, and any such flue shall have openings for smoke pipes upon one side only.

#### SMOKE PIPES.

**SECTION 543.** Whenever a smoke pipe passes through a hollow wall or a clothes closet, or any concealed space between the face of a partition in any room and the chimney it shall be of galvanized iron with riveted joints covered with five thicknesses of cell corrugated asbestos paper not less than one inch in total thickness and an outer iron pipe to protect the asbestos, and shall be securely built into 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 4 inches in thickness and extending through the partition or by a solid coat of plaster of paris 4 inches thick, or by a double metal collar with air chambers not less than 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 times the diameter of the pipe across.

**SECTION 545.** In all cases where hot water, steam, hot air or other furnaces are used for heating a building, or any portion thereof, no furnace smoke pipe shall run within less than 8 inches of any wooden joists or ceiling of wood or of wooden lath and plaster; or within less than 18 inches thereof, unless such joist or ceiling be protected by a shield of tin plate suspended above such smoke pipe not less than 1½ inches or more than 2 inches from such ceiling or joists. Such shield shall have a width of not less than five times the diameter of such smoke pipe.

#### REGISTERS.

**SECTION 546.** All pipe and register boxes used for the distribution of hot air from furnaces shall, when the air is

heated directly from a fire box, be made of bright tin, and double, with not less than ½-inch space between the inner and outer pipes, or bright tin covered with asbestos paper weighing not less than 2½ ounces to the square foot, and shall have double reamed joints, and shall not be soldered.

Where the air is heated with hot water or steam, other sheet metals may be used for pipes and register boxes.

All hot air registers placed in any floor or wall, and heating ducts or pipes, shall be provided with 1/16" thick asbestos paper or other non-conductor between all metal and woodwork.

When a register box is placed in the floor over a portable furnace, the open space on all sides of said box shall be at least 3 inches wide. When only one register is connected with the furnace such register shall have no valve.

Hot air pipes shall be secured in place by clips riveted to the pipe and nailed to the woodwork, but no nail or tack shall be driven through the pipe from any hot air furnace.

#### FIREPLACES.

**\*SECTION 547.** All hearths for fireplaces, whether used for wood, coal or gas, shall rest on trimmer arches of masonry, or tile, and all wood floor construction shall be at least 18 inches from the face of the finished fireplace and at least 15 inches from either side.

The back and jambs of every fireplace shall be not less than 8" thick. After the hearth arch is set the wooden false arch shall be removed.

#### BRICKSET FURNACES.

**SECTION 548.** The tops of all furnaces set in brick shall be covered with brick, slate, galvanized iron or tin, supported by iron bars and so constructed as to be perfectly tight. No range candy furnace or kettle set in brick shall be built against a brick wall with any combustible material between it and the wall, or upon said wall for a height of 2'0" above such range, furnace or kettle.

#### HOTEL RANGES.

**SECTION 549.** All wood lath and plaster, or wood ceiling or joists over ranges in hotels, restaurants or boarding houses shall be guarded by metal hoods placed at least 12 inches below the ceiling or joists. Any ventilating pipe connected with a hood over such range shall be of heavy galvanized iron and kept 12 inches from any wood lath and plaster or any combustible material, or said pipes shall be covered with one inch thickness of asbestos paper on wire mesh. No such pipe shall pass unprotected through any floor or partition. Such metal hoods shall have all joints and seams riveted or interlocked, and shall have a ventilating pipe of metal with riveted or interlocked joints venting, when possible, into an independent flue. Such vent pipe

\*(Metal supporting bars must be provided for arches of mantels and mantels must be well bonded to backing. Solid mortar joint between mantel and backing is required.)

shall be at least 12 inches from any unprotected woodwork, unless provided with double collar of galvanized iron with a 3-inch air space. Wherever passing through a floor into a room above, such collar shall extend 6'0" above the floor and 6" below the ceiling.

**SECTION 550.** Every steel range in hotels or restaurants, and all steam boilers not exceeding 10 horsepower, furnaces, ovens, coffee roasters and other structures in which fires are maintained, when set over a wooden floor, shall be set in 1½-inch "T" Irons, resting on one solid layer of brick laid flat with cement mortar, or on three inches of concrete. No such structure shall be set within 12 inches of any unprotected woodwork, and the floor in front of fire boxes shall be protected with a sheet of metal not less than 3 feet 0 inches wide, and at least 3 feet 0 inches longer than the width of the fire box.

**SECTION 551.** Every brick range when set over a wooden floor shall rest on a foundation of not less than three layers of hollow brick set in cement mortar. If built against a wooden or plastered frame partition or wall, the back of the range shall be 12 inches thick to the top of the range, and shall extend 4 inches thick to at least 2 feet 0 inches above the top of the range. The floor in front of the fire box shall be protected with sheet metal not less than 3 feet 0 inches wide and at least 3 feet 0 inches longer than the width of the fire box.

**SECTION 552.** All shelves over ranges shall be of metal on metal brackets. All heating stoves shall be at least 2 feet 0 inches from any unprotected woodwork, wood lath and plaster or other combustible material; or any such combustible material or other combustible material or an such combustible material with 2 feet 0 inches of the stove shall be protected with sheet metal shield leaving at least one inch of air space between the shield and the exposed woodwork, and such heating stove shall rest upon a metal covered board extending not less than 1 foot 0 inches in front of the stove.

#### WOODWORK PROTECTED.

**SECTION 553.** All burners or heaters on all gas, oil or electric apparatus or appliances, including stoves and plates, shall be at least four inches from any woodwork, or other combustible material, and all such material within 8 inches shall be protected as may be directed by the Superintendent of Buildings.

**SECTION 554.** All woodwork subject to spattering grease shall be covered with metal. All gas connections shall be of solid iron pipe or flexible metallic tubing. Every gas heated candy kettle shall have gas connections of solid pipe. The burners shall be not less than 10 inches from any woodwork. The kettle shall rest upon 3-16 inch sheet iron if over wooden floor.

Every kettle using coal or coke fuel must be at least 3 feet 0 inches from unprotected woodwork, and must be set on incombustible floor or on wood flooring protected by heavy sheet iron extending 12 inches beyond the sides and 2 feet 0 inches in front of the kettle. The kettle shall rest upon two layers of hollow brick, laid in cement mortar.

#### BOILERS AND BOILER ROOMS.

**SECTION 555.** Steam boilers exceeding 10 horsepower, if placed upon any floor above the cellar, shall be supported on floors of masonry. Every steam boiler shall be provided with a tank of sufficient capacity to hold a supply of water for such boiler for at least six hours.

**SECTION 556.** Every boiler room in any building, other than a dwelling, shall be enclosed with fireproof or incombustible stud partitions, and have a floor and ceiling of like construction. All openings between said boiler room and other parts of the building in which it is placed shall be provided with automatic self-closing fireproof doors.

#### SMOKE HOUSES.

**SECTION 557.** All smoke houses shall be of fireproof construction. Ventilators shall be provided at or near the top and guards not less than 3 feet 0 inches above the fire bed sufficient to prevent the meats from falling into the fire. All openings from smoke houses shall be fireproof openings, protected by automatic fire doors or shutters.

#### DRY ROOMS.

**SECTION 558.** Every dry room and enclosure used for drying by artificial heat shall be enclosed by fireproof or incombustible stud partitions, with a floor and ceiling of like construction, and shall be provided with a fireproof door; or shall be lined throughout with tin or asbestos paper ⅛ inch thick. Such dry room or enclosure shall have wire netting of not more than one-inch mesh, so placed as to prevent any contact between inflammable materials and the steam or heating pipes, stoves or other heaters.

#### SHAVINGS, VAULTS.

**SECTION 559.** Every building in the First, Second or Third Building District, used wholly or partly as a planing, shingle or saw mill; a sash, door or blind factory; or a wood-working factory or shop; and every such building in which shavings, sawdust, excelsior, straw, hay, loose paper or similar inflammable material is used for packing purposes, shall have a vault room of sufficient size to contain the same. All such inflammable material shall be removed from such premises to such vault room at the close of each day's work.

Such vault room shall be enclosed in fireproof partitions with floor and ceiling of like construction, or in case the same contains less than 400 cubic feet of space, such vault room may have walls, floors and ceilings, or either of them, constructed of not less than two thicknesses of matched dry lumber with broken joints, with a total thickness of not less than 2¾ inches. Said wood construction shall be covered on both sides with sheet metal with lock joints.

All openings to such vault room shall be closed by ap-



proved self-closing fireproof doors. Such doors shall be kept closed at all times except when such material is being placed in or removed from such vault.

## PART VI. MEANS OF EGRESS.

### GENERAL.

**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.

### STAIRS.

**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 in height 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 reasonable 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.

In every fireproof hotel, store, factory or workshop where the number of stairways required is one, and the second floor area is over 3,500 square feet, then the building shall be provided with at least two fire escapes.

**SECTION 604.** Every nonfireproof 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 buildings 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 and 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 service 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 and 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 adjoins and are separated by fireproof dividing walls and have 2 stairways each, they may 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 then 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 passage way 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 2 stairways required in a building is 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 2 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 the 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 supplies 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 40'0" 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 be not 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 be not 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 fire proof 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 1'3" 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 3 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.

### FIREPROOF TOWER STAIRS.

**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 be not 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

steps. Said stairs and landings shall be constructed throughout of incombustible materials.

**SECTION 625.** Every building over 3 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.

#### STAIRWAY ENCLOSURES.

**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 thickness 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 hardwood 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.

#### OPENINGS IN STAIRWAY ENCLOSURES.

**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 singly 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.

**STAIR HALLS.**

**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.

**FIRE ESCAPES.**

**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 six 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 fire 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  $\frac{3}{8}$  inch by  $1\frac{1}{2}$  inch placed not less than 14 inches apart, and rounds  $\frac{5}{8}$  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  $1\frac{1}{2}$  inches, or of angle iron of equal strength securely fastened together and to the wall. Such hand rail shall be not less than 3' 0" above the floor of the balcony, and braced every 5' 0" with braces extending not less than 4" outside the uprights. The space from the hand rail 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 five feet above the lower balcony to within 9 feet of the ground.

**SECTION 648.** Such fire escapes shall be not less than 2 feet 0 inches wide in the clear, and shall be provided with

\*(Bolts or screws used to fasten fire escapes either to frame or masonry walls must be galvanized or painted before installation.)

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 diapiered 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.

#### FIRE ESCAPE PLACARDS.

**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.

#### SCUTTLES AND LADDERS.

**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 0 inches in dimensions, which stairway, if enclosed, shall be provided with substantial hand rails, and if not enclosed shall be provided with substantial guards 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 enclosures, 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.

#### ELEVATOR ENCLOSURES.

**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 fireproof 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 fireproof doors.

**SECTION 663.** Every elevator shaft above the first floor level in non-fireproof buildings if within 20 feet 0 inches of a



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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 3¾ inches thick, lined with tin as required for the covering of fireproof doors, or plastered on both sides with hard plaster ½ 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 3¾ inches thick, lined with tin as required for the covering of fireproof doors, or plastered on both sides with hard plaster ½ inch thick. Such shafts shall be provided with approved fireproof openings.

### DOORS AND WINDOWS IN ELEVATOR ENCLOSURES.

**SECTION 666.** Every fireproof enclosure door leading to a freight elevator shall be arranged to close automatically when the elevator leaves the floor at which said door is located; or such door may be fastened open 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 electric 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 fire-proof 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.

#### CLEARANCE IN ELEVATOR SHAFTS.

**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 be not 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 be not more than  $1\frac{1}{2}$  inches.

Materials shall not be stored in any elevator shafts.

#### ELEVATOR CABS.

**SECTION 670.** Every passenger elevator shall have an enclosed cage at least 6 feet 6 inches high, built of metal, metal grille, 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 electric 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.

#### ELEVATOR CABLES.

**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.

Every 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 two 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.

(Hardwood guides are permitted in all buildings except fire-proof buildings for elevators having a run of not over four stories.)

#### ELEVATOR PITS.

**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.

(For hand-power elevators pits need be only 18" deep.)

#### ELEVATOR SAFETY DEVICES.

**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 device 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 within 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 any such elevator so condemned into service until after all defects pertaining 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 going 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.

#### USE OF ELEVATORS.

**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 employes 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 of age to operate any passenger elevator.

## PART VII. PLACES OF HABITATION.

### MORE DEFINITIONS.

**SECTION 701.** TENEMENT or APARTMENT HOUSES and other places of habitation, refuge and detention shall conform to the special requirements contained in this part and with all other laws relating to Plumbing, Health and Sanitation, and to Buildings in general.

Places of habitation shall include family residences or dwellings, hotels, tenement or apartment houses, flats, boarding or lodging houses, dormitories, and clubs. Places of refuge and detention shall include hospitals, buildings for housing the aged, the sick and infirm, imbeciles or children, asylums, houses of correction, police stations and jails.

**SECTION 702.** A TENEMENT or APARTMENT HOUSE is any building or part thereof which is occupied or is intended or designed to be occupied as the dwelling place of two or more families living independently of each other, and doing their own cooking upon the premises, and each having its own separate water closet within its apartment, and having a common right in the halls, stairways or some of them.

An APARTMENT in a tenement or apartment house, if occupied or designed to be occupied, as the dwelling place of one family, shall consist of two or more rooms in a suite including the cooking room.

A KITCHENETTE is a small, compact kitchen not designed to be used, nor used as a dining room, and having a floor area not exceeding 50 square feet between walls.

The FRONT OF A LOT is that boundary line which borders on a street. In the case of a corner lot, the owner may elect by statement of his plans, either street boundary line as the front. The rear of a lot is the side opposite to the front. In the case of a triangular or gore lot bounded by two streets the rear shall be the side not bordering on a street.

A YARD is an open, unoccupied space on the same lot with a building or house and included between the line of the house and the line of the lot unobstructed except by fire escapes or outside stairs; or is such open, unoccupied space extending across the middle of inside lots which are 150 feet or more in length and which extend through from street to street.

### HEIGHTS PERMITTED FOR HOUSES OF HABITATION.

**SECTION 703.** Heights of tenement or apartment houses shall be as follows:

No fireproof tenement or apartment house shall exceed in height the width of the widest adjoining street, plus 25 feet 0 inches, and shall not exceed 125 feet 0 inches in any case.

No side of a Mill Building used as a tenement or apartment house shall exceed an average of 60'-0" in height above the established grade along such side, nor be more than 70' 0" above such grade at any point, nor exceed an average of 5 stories high, nor exceed 6 stories in any part.

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No side of an Ordinary Masonry Building used as a tenement or apartment house shall exceed an average of 50'-0" in height above the established grade along such side, nor be more than 60'-0" above such grade at any point, nor exceed an average of 4 stories high, nor exceed 5 stories in any part.

No side of a frame building used as a tenement or apartment house shall exceed an average of 30' in height above the established grade along such side, nor be more than 40'-0" above such grade at any point, nor exceed an average of 3 stories high, nor exceed 4 stories in any part.

### ALTERATIONS IN CONNECTION WITH APARTMENT HOUSES.

**SECTION 704.** A building not erected as a tenement or apartment house if converted or altered to such use shall be subject to the requirements for tenement and apartment houses. A building erected and occupied as a tenement or apartment house shall not be so used if converted or altered to violate the requirements for tenement or apartment houses.

### TWO OR MORE APARTMENT HOUSES OR TENEMENTS ON ONE LOT.

**SECTION 705.** If two tenement or apartment houses are built on a through or corner lot, or if one tenement or apartment house and a building of another occupancy are built upon such lot, then each building independently shall be provided with the required yards and courts and the required uncovered lot area, and shall further comply with all other requirements of law for each such building when placed alone upon such lot. When a tenement or apartment house is located on a corner lot or through lot facing two streets, and when another building not a tenement or apartment house is located on the same lot, then such other building or its use and occupancy shall not be detrimental to the health and safety of the occupants of such tenement or apartment house.

### YARDS FOR APARTMENT HOUSES AND TENEMENTS.

**SECTION 710.** Except as hereinafter provided, there shall be behind every tenement or apartment house hereafter erected, a ground yard extending across the entire width of the lot, and at every point from the ground to the sky unobstructed, except by fire escapes or unenclosed outside stairs. Every part of a yard shall be fully open to every other part of the yard. The depth of said yard shall be measured from the extreme rear wall of the house or from covered porches or other similar projections, if any, to the rear line of the lot, and at right angles to said line, except that where there is an alley or public passageway in the rear of the lot the depth of the yard may be measured to the middle of said alley or open passageway. On an irregular lot of several depths, where there is more than one rear line to the lot, such yard may extend across the entire width of the lot in sections, provided that each section of the yard is in every part and at every point of the minimum depth

hereinafter prescribed. Where the side lines of a lot converge toward the front or rear, the area of the yard shall be equal to the area of the yard required of a rectangular lot of the same depth, the width of such rectangular lot being the same as the width of the converging lot taken at a distance from the rear lot line equal to the depth of the yard required of such rectangular lot.

Except on a corner lot, the depth of the yard behind every tenement or apartment house hereafter erected shall not be less than one-eighth the depth of the lot but never less than 5 feet 0 inches measured from the middle of an alley or public passageway, if any, and shall be increased in depth by at least 1 per cent. of the depth of the lot for each story above the third story.

Except as otherwise provided, the depth of the yard behind every tenement or apartment house hereafter erected upon a corner lot shall be not less than 1-16 of the depth of the lot measured as above provided and such yard need not be increased with the height of the building.

**SECTION 711.** If there is a public alley less than 10 feet 0 inches wide behind any tenement or apartment house, the yard may be placed at the side provided such side yard contains the same area as any required yard behind such tenement or apartment house, and provided such side yard is not less than 3 feet 0 inches wide throughout; and further provided that such side yard meets the approval of the Superintendent of Buildings.

**SECTION 712.** Whenever a tenement or apartment house is hereafter erected upon an inside lot which runs through from street to street, and said lot is 150 feet 0 inches or more in depth, then said yard shall be left midway between the two thoroughfares, and shall extend across the entire width of the lot, and shall not be less in depth in any part than one-eighth of the depth of the lot and shall be increased in depth by at least 1 percent. of the depth of the lot for each story above the third story. Neither the yard behind one tenement or apartment house nor any part thereof shall be deemed to satisfy in whole or in part the requirements of a yard for another tenement or apartment house on the same or another lot. No yard shall be required behind a tenement or apartment house upon a lot entire surrounded by streets; or by streets, alleys or permanent open passageways, not less than 14 feet 0 inches in width; or by such streets, alleys and passageways and a railroad right of way, a cemetery or a public park. No tenement or apartment house shall be built upon the rear of an inside lot unless a straight passageway not less in width than one-fifth the width of the lot and unobstructed from the ground to the sky except by fire escapes, be provided from such tenement or apartment house to the street.

**SECTION 713.** The ground yard hereinbefore required of every tenement or apartment house may be omitted provided the roof is constructed as a good, safe, convenient and healthful place for play and recreation for the occupants. Such place shall be known as a Roof Yard. The omission of the ground yard shall not be taken to reduce the amount of uncovered ground area required by law.

Roof Yards shall be constructed as hereinafter required and otherwise in accord with such regulations as the Superintendent of Buildings may issue under the authority granted him by this Code. The roof surfacing of such yards shall be of brick, flat roofing tile, slate, tile, cement finish, cement composition, dense tar or asphalt compounds, or other equally fire resisting and durable materials suitable for roof yards. The roof yard of every tenement or apartment house shall be supplied with good and ample means of egress as far apart as practicable and constructed as approved by the Superintendent of Buildings. The degree of safety provided by such means of egress shall not be less than that required for the tenement or apartment house of which the roof yard is a part.

**SECTION 714.** Every roof yard of tenement or apartment houses shall be entirely surrounded by an appropriate, safe, fire-proof wall, fence or screen, or a combination of them, not less than 6 feet 0 inches high in the clear above the adjacent finished roof surface.

**SECTION 715.** Plumbing pipes, chimneys, stacks, flues, vents, shafts or other conductors which project above the roof either within any required roof yard or 15 feet 0 inches from its nearest point and which emit fluids or gases detrimental to the health and safety of the occupants of the yard shall extend not less than 7 feet 0 inches above the highest point of the roof yard. The main smoke flues within the roof yard, or 15 feet 0 inches from the nearest point of the roof yard, shall extend not less than 10 feet 0 inches above the highest point of the roof yard.

**SECTION 716.** The cost of complying with the above requirements relating to conductors, projections and roof openings in any building contiguous to a tenement or apartment house shall be borne by the owner of the structure last built.

#### ROOMS IN APARTMENT HOUSES AND TENEMENTS.

**SECTION 720.** In every tenement or apartment house each apartment built for one family shall have not less than two rooms exclusive of bath and watercloset and including the room where cooking is done and at least one of such rooms shall contain not less than 120 square feet of floor area. Each other room except watercloset, compartments, bathrooms, pantries, kitchenettes, reception halls, and sleeping porches shall contain at least 80 square feet of floor area. Every sleeping room used for the accommodation of more than one person shall contain not less than 512 cubic feet of air space for such person over 14 years of age and not less than 300 cubic feet of air space for each child under 14 years of age.

Where there are three or more rooms, each room shall be accessible without passing through a bedroom.

**SECTION 721.** Habitable rooms in places of habitation, refuge and detention other than dwellings shall not be less than 8 feet 4 inches in height from floor to ceiling.



**WINDOW AREA IN HOUSES OF HABITATION.**

**SECTION 722.** In places of habitation, refuge or detention, other than dwellings, the total free window area of every habitable room shall be equal to at least one-eighth of the floor area of such room and not less than 12 square feet and located to light properly all portions of the room, except that windows for kitchenettes shall be not less than 5 square feet in free area. The top of at least one window in every room shall not be less than 7 feet 0 inches above the floor and all required windows shall be made to open at least  $\frac{1}{2}$  their area. Skylights having the light area and ventilating capacity required of windows for kitchenettes, bath rooms, watercloset compartments and halls may be used in such rooms in place of windows.

**SECTION 723.** Every habitable room in places of habitation, refuge and detention, other than dwellings, which opens upon an interior court less than 10 feet 0 inches wide shall be properly provided with a transom communicating with another room or corridor in the same apartment. Such transom shall contain not less than 4 square feet of glazed surface and shall be made to open easily.

**ALCOVES.**

**SECTION 724.** No part of any habitable room in any place of habitation, refuge or detention, other than dwellings, shall be enclosed or subdivided at any time as an alcove sleeping room, by a fixed or movable partition, by a door or doors, or by a screen or other contrivance or device unless such part of the room so enclosed or subdivided shall have an unobstructed and permanent opening into it equal to 75 per cent. 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.

**TOILET ROOMS IN APARTMENT HOUSES AND TENEMENTS.**

**SECTION 730.** In each apartment or tenement there shall be at least one water-closet for the exclusive use of such tenement or apartment and it shall be located in a bathroom or a separate compartment. When such water-closet is located in a water-closet compartment or bathroom ventilated by a vent duct, then such compartment or bathroom shall have a fixed sash with obscure glass facing the best borrowed light. In every tenement or apartment having three or more rooms at least one water-closet shall be accessible without passing through any bedroom.

In each apartment of every tenement or apartment house there shall be at least one proper and sufficient shower bath or fixed bathtub complete for bathing, and when there are three or more rooms such shower bath or bathtub shall be accessible without passing through any bedroom.

**BASEMENT APARTMENTS.**

**SECTION 731.** 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 cease to be so used six (6) months after the enactment of this Code; except that such rooms now so used may continue to be so used by adults only, provided such rooms are not more than two-thirds of their height below grade level and provided such rooms have a total free window area of not less than one-tenth 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 dampproof and waterproof and shall otherwise meet the approval of the Superintendent of Buildings. Such walls shall be furred with metal lath covered with not less than one-half inch of hard plaster, leaving one inch air space, or shall be furred with hollow terra cotta fireproofing. The floor shall be of concrete or asphalt.

**CHIMNEYS IN APARTMENT HOUSES AND TENEMENTS.**

**\*SECTION 732.** Chimneys in tenements or apartment houses shall be constructed as elsewhere required by this Code. Every apartment wherein solid fuel or oil is burned, shall be properly connected to an adequate masonry chimney provided with an open fireplace, a grate or a connection for a stove. In tenement or apartment houses, every apartment wherein gas is burned for purposes other than lighting, shall be properly connected to an adequate chimney; or, if a hood is not used, such apartment may be connected with a heavy sheet metal duct having locked or riveted air-tight joints and properly covered with 30-pound asbestos paper. Such duct shall open at least 2 feet 0 inches above the roof and as high as any construction above the roof against which such duct may be placed. In no case shall such duct be less than 27 square inches in area, or the width be less than 3 inches.

**ASBESTOS AND WIRE GLASS IN APARTMENT HOUSES AND TENEMENTS.**

**SECTION 733.** In non-fireproof tenement or apartment houses, 30-pound asbestos paper completely covering the floor shall be placed between the rough and finished floor boards of every floor immediately over all ceilings elsewhere required to be lathed with metal lath or plaster board. Where glass is used in the outside walls, or inside partitions of public halls,

**\***(All apartments must have either masonry flues or metal ducts for connecting gas ranges. Ducts must be of No. 27 gauge or heavier metal, covered with asbestos paper weighing not less than 10 pounds per square. The minimum permissible area of an individual vent duct shall be 13.5 square inches and not less than 10 square inches per inlet shall be provided in vent ducts into which more than one inlet opens. Not more than four inlets may open into one common duct, provided, however, that any number of ducts may terminate into a single duct above the highest inlet opening. All ducts must continue to a point at least 2 feet above the roof and as high as any roof construction against which they may be placed.)



corridors, stairways and other public passageways above or below ground, it shall be wire glass.

#### DETRIMENTAL USE OF APARTMENT HOUSES AND TENEMENTS.

**SECTION 734.** No part of any tenement or apartment house, nor of the lot on which it is situated, shall be built or used for a place for the keeping or handling of any inflammable article or any other article or process dangerous or detrimental to life and health except under regulations issued by the Superintendent of Buildings and receiving the approval of the Board of Appeals.

#### GARBAGE DISPOSAL IN APARTMENT HOUSES AND TENEMENTS.

**SECTION 735.** Every Tenement or Apartment House shall have suitable arrangements for the disposal of waste, garbage, rubbish, refuse or other like matter and shall be provided with a proper receptacle or receptacles for temporary storage conveniently located for garbage collection. No garbage chute shall be installed in such buildings except a water flushed or other approved sanitary chute constructed according to regulations agreed upon by the Superintendent of Buildings and the Commissioner of Health. Such chute may be required by the Commissioner of Health—in all cases subject to such regulations.

### PART VIII. PLACES OF PUBLIC ASSEMBLY.

#### DEFINITIONS.

**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.

#### CHURCHES.

**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 an aggregate seating capacity greater 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.

#### PUBLIC ASSEMBLY HALLS.

**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 fire wall 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 Assembly 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" inches 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 ag-

gregate 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 for each 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 3' 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 be not less than 4' 0" wide. Such emergency exits and stairways may be built inside 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 purposes of a public assembly hall shall open outward.

Exit doors shall not be obscured 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 1½ inch for each 5 running feet, the aggregate width shall be considered to be the sum of the average widths 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 Public Assembly Halls shall comply with the requirements for theatres 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' 0" wide in the clear; provided that in any such building having a room or rooms, balcony or gallery, used for the purposes of Public Assembly Halls the aggregate seating capacity of which does not exceed 250 persons, 2 separate and distinct stairways, each 3' 0" wide, shall be required, and shall be located as far apart as practicable.

**SECTION 819.** Every portion of a building used as 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 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.

#### AMUSEMENT HALLS.

**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 a 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' 0" 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 permanent 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 stand pipe 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.

### THEATRES.

**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 moveable 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 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 time, 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 1,000, 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 the 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 story 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 1,000 and not more than 1,800 people, 8 feet 0 inches in width; and above 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 win-



dows 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 to 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 hand rail 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 hand rail 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 curtain 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 Marshall. 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 dressings 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 con-

struction. 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 this 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 grid-iron 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 candlepower, 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 stand pipes 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 stand pipes 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 stand pipes.

They shall be fitted with good 2½ inch valves at each outlet. National standard 2½ 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 area behind the proscenium wall, including the stage, the rigging loft, 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 wood-work.

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 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.

#### MOVING PICTURE THEATRES.

**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 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 4'0" 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 4'0" 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 3'0" 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 floor 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,

\*At a session of the Board of Appeal 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.

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.

#### SIZE OF BOOTH.

**SECTION 871.** Every machine installed or operated shall be enclosed within a booth.

All booths shall be at least 7'0" 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 2'0" wide by 6'0" high, opening outward, closed by a strong spring and kept closed while the machine inside is in operation.

#### FIREPROOF BOOTHS.

**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.

#### PROTECTED WOOD BOOTHS.

**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 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. gauge 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.

(Rubber bumpers, for shutters to strike against when closing, are required.)

**SECTION 875:** There shall not be more than two shelves, 12 inches wide and 4'0" long, in any Moving Picture Booth, one for rewinding 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 to 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 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 maintained 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.

#### PORTABLE BOOTHS.

**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 2'0" 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.

#### SCHOOL BUILDINGS.

**SECTION 883.** The terms 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 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 12'0" in height.

Any attic story in any building in which school or class rooms 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 14'0" 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 6'0" for corridors, passageways and hallways, and not less than 3'0" 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 2'6".

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 2'6" 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.

## PART IX. BUILDINGS FOR SPECIAL USES

### SPECIALLY HAZARDOUS STORAGE.

**SECTION 901.** Every building constructed for the storage in quantity of articles designated as specially hazardous in the classification of the National Board of Fire Underwriters or for the storage of articles involving a similar hazard, shall be separated from all other buildings by a space of not less than 100'0". No such building shall be more than two stories high, and combustible material shall not be used in its construction. No room in such building shall have a greater area than 300 square feet, and all dividing walls shall be made of brick not less than 12 inches thick, or of equivalent concrete construction.

### PROHIBITED BUILDINGS.

**SECTION 902.** No building shall be constructed and no building not now used for such purposes shall be constructed, altered or repaired to be used for any of the following purposes

within the city limits, without the consent of the City Council and the Mayor:

- a. Confinement of insane children or adults.
- b. Distillation of spirits of turpentine or varnish.
- c. Manufacture of cotton wadding, laps or bats.
- d. Manufacture of explosives.
- e. Refining of petroleum or any of its products.
- f. Rendering of fats, lards and like products.
- g. Hair factory.
- h. Lime kiln.
- i. Tannery.
- j. Refinery.
- k. Abattoir.
- l. Glue factory.
- m. Manufacture of roofing materials of chemical composition.
- n. Pulverizing charcoal.
- o. Stock yards.
- p. Poudrette works.
- q. Asphalt plant.
- r. Manufacture of fertilizers.
- s. Smelter.

All such buildings shall be known as Prohibited Buildings.

**SECTION 903.** Repairs not exceeding one-quarter of the value of the building during any one year may be permitted by the Superintendent of Buildings where any Prohibited Building is being used for such purposes at the time of passage of this ordinance.

**SECTION 904.** Before any ordinance shall be passed authorizing the construction, alteration and repair of any Prohibited Building at least 10 days' notice shall be given by the person or persons or corporation interested or applying for such authority of the intended application for the passage of such ordinance by a publication to that effect of at least four insertions in two or more daily newspapers published in the City of Seattle. Such notice shall specify the lot of ground or premises upon which such building or other structure is to be erected, altered or repaired, and the purposes for which the same is intended to be used in sufficient detail to apprise the property owners or holders in the vicinity of the proposed improvement of the exact location and nature of the same. The Superintendent of Buildings shall cause notice of every such application to be conspicuously posted upon the property.

### LIMITED BUILDINGS.

**SECTION 905.** The following buildings shall be limited as to location:

- a. Hospitals and buildings for the treatment of the feeble minded.
- b. Sanitariums.
- c. Dairies.
- d. Dog pounds.
- e. Blacksmith shops.
- f. Junk shops.
- g. Rag shops.

- h. Brick, tile and terra cotta factories.
- i. Stoneware and earthenware factories.
- j. Paint factories.
- k. Soap factories.
- l. Candle factories.
- m. Woodworking factories.
- n. Lumber yards.
- o. Planing mills.
- p. Iron mills.
- q. Foundries.
- r. Breweries.
- s. Distilleries.
- t. Packing Houses.
- u. Gas Works.
- v. Acid works.

All such buildings shall be known as Limited Buildings.

**SECTION 906.** No permit shall be issued for any Limited Building until at least 10 days' notice of the application therefor has been published no less than four times in two or more daily newspapers in the City of Seattle, and until notice of such application has been conspicuously posted upon the property for a like period of time.

The owner of any property within 500'0" of the proposed location of any limited building may file a protest with the Superintendent of Buildings, and the matter shall be referred to the Board of Public Works for determination in accordance with the method of procedure prescribed in this Code for the approval or disapproval of the location of stables.

#### PLACES OF REFUGE AND DETENTION

**SECTION 910.** All buildings used for Places of Refuge and Detention if three stories in height above the established grade, shall be of fireproof or mill construction. Such buildings if more than three stories high, shall be of fireproof construction; and no such buildings other than police stations or jails shall exceed six 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 stories in height hereafter constructed for or converted to hospital purposes shall have at least one elevator, the floor dimensions of which shall not be less than 7'0" by 5'0", and said elevator shall be enclosed in a fireproof shaft with incombustible doors closing off each opening and shall comply with all the general provisions of this Code relating to elevators.

**SECTION 913.** All buildings used for Places of Refuge and Detention shall be equipped with fire escapes not less than 3'0" in width which shall, in number, location and structural features, comply with all the general provisions of this Code relating to fire escapes.

#### STABLES.

**SECTION 920.** All stable floors, except as hereinafter provided, shall be constructed of concrete at least 4 inches thick with a smoothly troweled wearing surface at least  $\frac{3}{4}$ -inch thick, composed of Portland cement and an equal quantity of sand; provided, that in lieu of a cement wearing surface vitrified paving brick with grouted joints or asphaltum or other suitable wearing surface may be permitted by the Superintendent of Buildings. No concrete or brick stable floor shall be supported by wood joists or be laid on plank.

**SECTION 921.** In case no part of a stable floor is less than 18 inches above the ground thereunder or adjacent thereto, such floor may be constructed of wood not less than  $3\frac{1}{2}$  inch thick, composed of two thicknesses of tongued and grooved or splined plank driven tight with white lead paste in all joints, or of one thickness with all joints calked with oakum and pitch. All wood floors in stables must be built and maintained so as to be water tight; must have adequate provisions for expansion, if within masonry walls, and must have thorough cross ventilation beneath same.

**SECTION 922.** 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 connection 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 4 in. in diameter, except that laterals draining but one stall may be of 3-inch pipe. Catch basins must be constructed of masonry or iron and be at least 2'0" in any internal dimension, and be provided with vent pipe not more than 8 inches from seal.

A  $\frac{3}{4}$ -inch hose bib, 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 cleansed and flushed at least twice each week.

**SECTION 923.** Every stable capable of accommodating 10 or more animals shall be provided with fully equipped fire hose reel or racks connected to an adequate source of water supply through not less than 1 $\frac{1}{2}$ -inch pipe; said reels or racks shall be of such number and so placed that with 50'0" of hose and  $\frac{3}{4}$ -inch nozzle with water pressure of 20 pounds per square inch all parts of the building may be reached.

**SECTION 924.** Every stable must be provided with one or more than one water-tight and tightly closed receptacle for manure, 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 acre or more in extent, manure may be stacked with the approval of the Commissioner of Health. Receptacles for manure located within any building shall be vented, through an air-tight shaft of at least 48 inches sectional area leading to and above the level of the roof and to a point more than 20'0" from any adjacent property.



**SECTION 925.** Every stable capable of accommodating from five to ten animals shall have at least two exits 5'0" or more in width, at least 30'0" apart and at opposite ends of the building when practicable. Every stable capable of accommodating more than 10 and less than 50 animals, shall have exits as hereinabove required except that the minimum aggregate width thereof shall be increased 6 inches for each additional 10 animals. Every stable capable of accommodating more than 50 animals shall in addition to the exits hereinbefore required, have an additional exit or exits, as in the judgment of the Superintendent of Buildings the exigency of the case may require.

**SECTION 926.** Stables located above the ground floor shall have runways equal in number and width to the exits required by this ordinance, terminating at the exits; said runways to have no greater pitch than 6 to 12.

**SECTION 927.** No portion of the ground adjacent to any stable shall be used for the purpose of allowing animals to stand or run at large, unless approved by the Commissioner of Health.

**SECTION 928.** It shall be unlawful to erect or convert a building to be used as a stable within the Third or Fourth Building Districts to house animals for hire or as a boarding, community or dairy stable without their be filed with the application for a permit the written consent thereto of the owners of two-thirds of the remaining property located within 200'0" of the proposed stable; provided, however, that should there be no building within 200'0" of the proposed stable occupied as a place of habitation, a place of refuge or detention, or a place of assembly, such signatures of consent shall not be required.

A stable accommodating one cow or a cow and a calf shall not be regarded as dairy stable.

**SECTION 929.** Applications for permits to erect buildings for stable purposes in the First Building District, or to erect, alter or convert buildings for stable purposes when located more than 200' 0" from any building occupied as a place of habitation, a place of refuge or detention, or a place of public assembly, shall be exempt from the following special requirements contained in this section:

If an application is filed with the Superintendent of Buildings for a permit to erect or alter a building to be used as a stable, or to make alterations intended to increase the capacity of a stable outside the First Building District and within 200'0" of any place of habitation, place of refuge or detention, or place of public assembly, it shall be the duty of the Superintendent of Buildings to cause a placard to be conspicuously posted on the site of such proposed stable not later than 48 hours after the filing of the application for such permit stating thereon the number of animals to be accommodated, the date of the filing of the application, the date of public hearing in the event of protests being filed, and giving all necessary instructions for the preparation and filing of protests.

Protests against the location of a stable or the increase in capacity of a stable must be in writing, signed by the owners of property within 200'0" of the proposed stable and such protest must

plainly indicate by lot and block number the location of property owned by the protestant.

If any such protest is filed in the office of the Superintendent of Buildings within two weeks of the date that application for such permit is made, no permit shall issue upon said application unless the location of said stable be approved by the Board of Public Works after the said board has given a public hearing to the applicant and to those who file such protest against the approval of such location.

Should no such protest be filed within the time stated, or in case the location is approved by the Board of Public Works after such hearing, the Superintendent of Buildings is authorized to issue such permit subject to the provisions of this Code relating to Stables.

### WOODYARDS.

**Section 930.** (As established by Ordinance 36506). It shall be unlawful for any person to locate, establish, enlarge or extend any coal and wood yard, or any wood yard or coal yard, for the keeping or handling of wood, coal, kindling or other fuel products for sale or distribution, or to erect any buildings or structures to be used for such purposes, outside of the first and second building districts of the City of Seattle, without first procuring a permit therefor from the Superintendent of Buildings as hereinafter provided:

Application for a permit for the erection, location, maintenance, alteration, enlarging or extending of any such yard shall be filed with the Superintendent of Buildings whose duty it shall be to cause a placard to be conspicuously posted on the site where it is proposed to erect, locate, maintain, alter, enlarge or extend such yard giving notice of the filing of such application and that a hearing will be had before the Board of Public Works at a date therein stated. If any protest be filed with the Superintendent of Buildings within two (2) weeks of the date of the posting of such notice no permit shall issue upon said application unless the proposed location be approved by the board of public works after public hearing to the applicant and to those who protest against the approval of such location. Should no protest be filed, or in the event the Board of Public Works shall approve such location after public hearing, the Superintendent of Buildings is authorized to issue a permit for the erection, location, maintenance, alteration, enlarging or extending of such yard. The Board of Public Works reserves the right and authority to require such changes or modifications as to location or construction of any such yard or buildings in connection therewith as the Board may deem necessary and proper to protect the public interest.

### GARAGES.

**SECTION 935.** All garages except as hereinafter provided, shall be separated from portions of the same building used for other purposes by fireproof walls, floors and ceilings.

All window openings between garages and portions of the same building used for other purposes shall be fixed, fireproof windows, and all doors shall be fireproof and self-closing.



**SECTION 936.** A garage to accommodate not more than one automobile, not kept for hire, may be located in, under or adjoining a building not used for sleeping purposes, or may be located in a dwelling, if such building or dwelling has means of egress separate from the garage, and is separated from the garage by mill or equivalent construction containing no doors or windows other than the kinds above described; provided, however, that no automobile propelled by steam, and requiring an open flame for generating such steam, shall be kept in any dwelling or addition thereto.

No garage shall be located in any building containing a place of assembly, refuge or detention.

**SECTION 937.** No garage shall be directly heated by a stove, or be lighted by other means than by incandescent electric lights.

No open flame shall be maintained, and there shall be no smoking in any garage.

**SECTION 938.** No garage, other than a private garage for four automobiles or less not kept for hire, shall be permitted in that part of the Fourth Building District lying east of a line midway between Twelfth Avenue and Thirteenth Avenue from Yesler Way to Denny Way, and east of the center line of Eastlake Avenue from Denny Way north to Lake Washington Canal in blocks containing dwellings, tenement or apartment houses or flat buildings, unless there be filed in the office of the Superintendent of Buildings the written consent thereto of the owners of at least two-thirds of the improved property located in the said block, and of any other improved property within 100'0" of such garage, provided that this provision shall not apply to any block or blocks within said district in which there is now maintained a public garage where automobiles are received or kept for storage, repair, or hire.

**SECTION 939.** The foregoing provisions relating to garages shall not be construed to forbid the housing of automobiles in Fire or Police Stations maintained by the City of Seattle.

#### LAUNDRIES.

**SECTION 940.** It shall be unlawful for any person, firm or corporation hereafter to establish and maintain any building or premises as a public laundry or washhouse without first obtaining the approval of the Board of Public Works and Department of Health specifying the name of the permittee and the location of the premises to be used as a laundry or washhouse; provided, however, that the Board of Public Works in the granting or refusal of such approval shall exercise a reasonable and sound discretion, taking into consideration the character of the applicant for such permit and the intended location of such laundry or washhouse.

(Ordinance 16003, approved May 16th, 1907, requires posting of placards giving two weeks' notice to property owners and residents of intention to establish a laundry.)

#### COLD STORAGE AND ICE HOUSES.

**SECTION 945.** Nothing in this Ordinance shall be construed to prevent the erection of cold storage plants to a height not

exceeding 55'0" when such structures are erected in locations approved by the Board of Public Works.

And provided further, that such cold storage plants have a fireproof roof, and that their exterior walls be covered with metal, asbestos, concrete or other fireproof material, and that the hallways, passages and elevator shafts be protected by an approved automatic sprinkler system.

**SECTION 946.** Buildings to be used exclusively for the storage of ice may be erected in isolated localities and constructed as required in the building district where located or of such materials and under such reasonable conditions as the Superintendent of Buildings may prescribe, including location.

#### WATERFRONT BUILDINGS.

**SECTION 950.** Buildings on the waterfront resting on pile foundations and subject to swaying from the action of tides, waves or vessels, shall not be required to be lathed and plastered or have masonry walls, flues or chimneys, but when such buildings have smoke flues, such flues shall be of metal, made double with 1-inch ventilating space, filled with corrugated asbestos paper.

**SECTION 951.** (As amended by Ordinance 34963. Every dock, wharf or pier hereafter constructed on the waterfront of the City of Seattle, unless of fireproof construction throughout, must be provided with draft curtains extending from the under side of floor planking to a depth of not less than three (3) feet below the same and cut in tight between floor joists at top; these curtains to be not more than one hundred (100) feet apart, at right angles to the main axis of the dock, pier or wharf, and to be constructed of two thicknesses of two-inch tongued and grooved or shiplapped plank laid with broken joints, or equally fire resisting material.

**SECTION 952.** Unless of fireproof construction, every warehouse, storeroom, bunker or other building hereafter constructed upon any dock, wharf or pier shall be provided with fire walls not over five hundred (500) feet apart and roof curtains not over one hundred (100) feet apart between fire walls, and any such structures situated upon any dock, wharf or pier heretofore constructed shall be provided with roof curtains not over one hundred (100) feet apart.

All required fire walls and roof curtains shall be constructed of two thicknesses of one three-quarter-inch tongued and grooved or shiplapped planking not over six inches wide, laid with broken joints; two thicknesses of seven-eighths ( $\frac{7}{8}$ ) inch tongued and grooved lumber, laid with broken joints and with a layer of thirty (30) pounds asbestos paper well fastened between, or other material equally fire resisting satisfactory to the Superintendent of Buildings.

All fire walls shall extend continuously from a point three (3) feet below the bottom of the wharf flooring to a height of two (2) feet six (6) inches above the roof, and all required roof curtains shall extend from the bottom of the roof trusses to the underside of the roof sheathing.

Openings through fire walls and roof curtains shall be minimized in size and number and shall be protected with automatic, self-closing, fireproof, swinging or sliding doors.

Every one hundred (100) feet division between required roof curtains shall be provided with a skylight or monitor with louvers of open capacity equal to not less than one per cent of the area of the division.

Unless of fireproof construction, all such buildings hereafter constructed must have the outside of all their enclosing walls, roofs and cornices covered with galvanized iron, asbestos, cement shingles or sheets, or some other equally fire resisting material. Prepared roofing felts, wood shingles, wood siding or uncovered tarred felts shall not be used.

In every division between fire walls or in every five hundred (500) feet or less of length of all such buildings heretofore or hereafter constructed, either of fireproof construction or non-fireproof construction, there shall be provided wet line standpipes and not less than two (2) sets of hose and hose racks or reels of approved make.

Along the entire length of ridge of every such building heretofore or hereafter constructed, unless of fireproof construction, and along the highest points of every shed roof and when required by the Superintendent of Buildings, along the eaves against the walls of the building, there shall be provided and properly supported a dry line perforated or sprinkled galvanized wrought iron water pipe of approved dimensions and not less than three (3) inches in diameter, so designed and constructed as to discharge a sheet of water upon the roof surface or the walls of the building; said pipe to be connected to a standpipe returning down to the street at the front of the building and to have a Siamese or triple standard hose connection at standard height above the street grade.

Where there are offices or rooms above the dock floor in such buildings every space inclosed between the outside walls and the fire walls herein mentioned shall be provided with two (2) independent stairways leading to the main floor.

All such structures used for passenger service shall also be provided with such adequate fire escapes, outside balconies, enclosed runways, stairways or other means of egress and safeguards for the protection of life and property as shall be satisfactory to the Superintendent of Buildings and the Chief of the Fire Department.

**SECTION 953.** Whenever such a dock, wharf, pier, bunker or other similar structure is more than one story in height, there shall be provided two enclosed stairways in each section into which the building is divided by the above described fire walls.

**SECTION 954.** Before commencing or proceeding with the erection, construction, enlargement, alteration, repair or removal of any dock, wharf, bunker, pier or other similar structure on the waterfront within the Port of Seattle, an application for a permit shall be made to the Superintendent of Buildings of the City of Seattle, who shall issue a permit in accordance with this Code and such regulations not in conflict therewith as the Port Commission of the Port of Seattle may determine.

## GRAIN ELEVATORS AND COAL POCKETS.

**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.

**SECTION 956. (As amended by Ordinance 35648).** Sheds or buildings in outlying portions of the Third Building District, to be used for boat building, steel or iron working plants, or other purposes requiring large areas, may be built of frame construction, provided their floors, roofs and exterior walls be of incombustible or slow burning construction, and provided further that they be isolated and, when required by the Superintendent of Buildings, equipped with roof sprinklers or automatic sprinkler equipments and otherwise constructed in a manner equivalent to the construction hereinbefore required for docks. Such structures shall not be over two stories in height.

**SECTION 960.** Church spires, shot towers, water towers and smoke stacks shall comply with the general structural provisions of this Code as to strength and stability, and shall be subject to such further reasonable regulations as the Superintendent of Buildings may deem necessary to safeguard the public interest.

## MIXED BUILDINGS.

**SECTION 970.** Where any building is used for two or more kinds of use or occupancy as herein specified, such portion of any such building as is devoted to any particular use shall be constructed, operated and maintained in accordance with the requirements of this Code relating to such use, unless such construction shall, in the opinion of the Superintendent of Buildings, prove impracticable, or unless there would be a conflict between the provisions of this Code relating to the construction of buildings. In either of such cases the provisions of this code which relate to and govern the construction of buildings of that use or occupancy requiring the best and safest form of construction shall govern the entire building.

(Section 971 to 986, both inclusive, were incorporated in the building code by Ordinance 34963, approved July 16th, 1915.)

**SECTION 971.** It shall be unlawful for any person, firm or corporation to manufacture, print, develop, keep, store or use nitro-cellulose motion picture films in any building or place within the corporate limits of the City of Seattle without first obtaining as hereinafter provided and having a permit in writing so to do and without complying with all the provisions of this ordinance.

**SECTION 972.** The provisions of this ordinance apply primarily to films of nitro-cellulose or other inflammable composition. Where films of the non-flaming variety only are stored, kept, used or worked upon, the terms of this ordinance may be waived in whole or in part by the written consent of the Superintendent of

Buildings, countersigned by the Fire Marshal. All of the provisions of this ordinance shall, however, apply where both the inflammable and non-inflammable films are stored, kept, used or worked upon.

Nothing in this ordinance contained shall be construed as prohibiting the keeping and using of motion picture films, for exhibition purposes only, in authorized motion picture theatres, provided not more than ten (10) reels of film are kept in any one such theatre at any one time except by special permit of the Superintendent of Buildings and the Fire Marshal first obtained and provided further that all reels be kept in approved metal containers with self-closing doors, located in a projection machine booth constructed and maintained as required by the building ordinance of the City of Seattle.

**SECTION 973.** Wherever in this ordinance used, the term "motion picture film" and "motion picture films" shall be understood to mean films composed of nitro-cellulose or pyroxylin-plastic material or of other inflammable composition.

The term "reel" wherever in this ordinance used shall be understood to mean approximately One Thousand (1,000) feet of motion picture film, approximately One and Eleven-Thirty-seconds (1 11/32") inches in width and .0055" in thickness, weighing approximately Five (5 lb.) pounds, or an equivalent amount.

**SECTION 974.** Any person, firm or corporation desiring to manufacture, print, develop, store, keep or use motion picture films in any building or place within the corporate limits of the City of Seattle shall file with the Superintendent of Buildings a written application for permit so to do, which application shall set forth the name, residence and place of business of the applicant and the location at which it is desired or intended to manufacture, print, develop, store, keep or use such motion picture films.

Upon receipt of such application the Superintendent of Buildings shall make an investigation to determine whether or not the building or place defined in the application is so situated, arranged and constructed as to comply with the provisions of this ordinance.

If the Superintendent of Buildings shall find that the building or place is not so constructed, arranged or equipped, or if he shall find that the desired use will conflict with or be contrary to the provisions of this ordinance it shall be his duty to reject the application for the permit.

**SECTION 975.** The Fire Marshal shall frequently inspect all buildings or places containing motion picture films to determine whether the provisions of this ordinance are being complied with; and it shall be his duty to enforce the provisions hereof, as they pertain to the operation and maintenance of such buildings and places.

**SECTION 976.** The Fire Marshal and the Superintendent of Buildings shall each have power, separately or jointly, to revoke or suspend any permit granted under the terms of this ordinance for violation of any of the provisions of this ordinance.

**SECTION 977.** No permit shall be issued to manufacture, print, develop, keep, store or use motion picture films in any basement or in any building:

(a) which is more than two stories high.

(b) which is of frame construction.

(c) any part of which is occupied or used or intended to be occupied or used as a place of assembly, habitation, refuge or detention; or as an office building, workshop or factory, in which more than fifty people not connected with the establishment in which films are located are employed or congregate at any one time;

Provided, however, that the provisions of this section shall not apply to places where motion picture films are manufactured, printed, developed, kept, stored, or used at the time of the passage of this ordinance.

Door or window openings may be prohibited, or may be required to be made fireproof, in walls adjoining, facing or in proximity to other buildings or property; and there shall be no openings in walls facing and or in proximity to public buildings, school buildings, places of assembly and other buildings in which large numbers of people congregate.

**SECTION 978.** All films not in use or not being worked upon shall be kept in approved shipping crates or cases or individually enclosed in metal cans or boxes with tight covers and shall be stored in fireproof vaults constructed in accordance with the following specifications:

(a-1) In buildings of other than fireproof construction, vaults for the storage of motion picture films shall have self-supporting brick walls, not less than 12 inches thick, laid in cement mortar, extending from, or supported by masonry or fireproof steel columns or piers extending from the ground. Top and bottom of vault shall be made of brick arches of the same thickness as walls or of reinforced concrete slabs not less than 6 inches in thickness. No wood top flooring shall be used. Size of vault shall not exceed 750 cubic feet. The door opening into vault shall be protected on outer side of wall with standard vault iron door, at least 3-16 inch thick, and made smokeproof by closing against a rabbet at top, bottom and one side, hinge side of door to close into a groove; door and wall frames to be of construction equivalent to the standard iron fire door, vault pattern; and on the inner side of the wall by an iron door of at least No. 14 U. S. gauge. One of the above doors shall be equipped with an approved mechanism so it will close automatically upon the melting of an approved fusible link inserted therein. This door may be left open during the time the film exchange is in active operation; but must be closed at night or during other inactive periods. The other door shall be kept closed at all times. All shelves and other fixtures inside vaults shall be of incombustible material. No lights other than stationary vapor-proof incandescent electric lamps, properly guarded, shall be installed inside, switch shall be outside and provided with pilot light or other indicator; all wiring shall be in metallic conduit in conformity with the wiring ordinance of the City of Seattle. No artificial heat shall be permitted in vault.

(a-2) In buildings of fireproof construction, vaults may be carried on the structure from floor to floor. Walls, floors and ceilings shall be of brick, not less than 8 inches thick, laid in cement mortar or other masonry of equivalent strength. In all other respects such vaults shall comply with specifications for vaults in buildings of non-fireproof construction.

(b) Every vault shall be vented to the outside air by an opening at or in the ceiling; such opening shall have a sectional area of not less than  $1\frac{1}{3}$  square inches for each cubic foot of space contained in the vault. The vent duct shall be constructed of masonry not less than 6 inches in thickness, and shall extend continuously and as directly as possible to the outside air. This duct shall not expose or be exposed by other property; shall be shielded from the weather; and shall be provided with a stout galvanized or copper wire screen of  $\frac{1}{4}$ " mesh.

(c) There shall be no window or other opening into any vault except the vent opening and the door opening hereinbefore specified.

**SECTION 979.** (a) Examining and repairing of films shall be done only in an "examination room" having outside ventilation and separated from the rest of the building by tight partitions, floor and ceiling, of incombustible material, which same shall contain no glass other than wired glass.

(b) Examination room shall be of such size as to provide not less than 450 cubic feet of air space for each person employed therein; and, where practicable, shall be contiguous to an outside wall of the building containing same. Windows alone shall not be depended upon for ventilating examination room; but such ventilating ducts shall be provided as in the opinion of the Superintendent of Buildings are required to give at all times by natural or mechanical means an adequate supply of fresh air.

(c) Examination room shall be provided with at least two exits so located as to preclude the possibility of both being cut off by fire in this room, the shipping room, the cleaning room, and or the vault. Each doorway shall be equipped with a fireproof, self-closing door opening outward and closing against incombustible stops. An approved outside stairway fire escape, with balanced extension reaching to the ground, readily accessible from the examination room through a doorway in the outside wall, may be accepted as constituting one of the above required exits.

(d) Examination room shall be used neither for storage nor handling of combustible materials other than films, and all furniture and fittings shall as far as practicable be of incombustible material.

(e) The number of reels of films in the examination room at any time shall not exceed the equivalent of ten (10) exposed reels. Reels in approved shipping crates or in individual metal cans or boxes shall be considered unexposed, but three (3) reels in such receptacles shall be considered the equivalent of one exposed reel.

(f) Examination room shall be heated only by hot air, hot-water or steam, and metal shields or screens shall be provided to prevent the films from coming in contact with radiators or heated pipes. No hot-air floor registers shall be used.

(g) Standard metal cans shall be provided where repairing is done. All scrap or waste from the films shall be kept therein and removed from the building daily to a safe location. Such waste shall be kept separate from paper waste or other rubbish, and shall not be allowed to accumulate and lie upon the floor or benches.

(h) Each examiner shall be provided with not to exceed two (2) ounces of any compound of collodion and amyl acetate or sim-

ilarly inflammable cement and all such cement in excess of the foregoing amount shall be kept in the vault.

(i) Examination room shall be lighted by incandescent electric lamps in vaporproof globes, properly guarded.

(j) Motors for the operation of re-winds or for other purposes shall be of the fully enclosed, non-sparking type and shall have no exposed live metal parts.

(k) All electric wiring shall be installed in metal conduits in conformity with the requirements of the electrical ordinances of the City of Seattle.

**SECTION 980.** (a) The packing of motion picture films for shipment or the unpacking of same shall be done only in a "shipping room" having outside ventilation and separated from the rest of the building by tight partitions, floor and ceiling of incombustible material with self-closing fire doors at openings; partitions and doors to contain no glass other than wired glass.

(b) Shipping room shall be used neither for the storage nor handling of combustible materials other than films and all furniture used therein shall as far as practicable be of non-combustible material.

(c) The number of reels of films in the shipping room at any one time shall not exceed the equivalent of ten (10) exposed reels as hereinbefore defined.

(d) In all other respects the equipment of shipping room shall comply with the requirements for examination room.

**SECTION 981.** Where a motion picture machine is used for projecting films for display or other purposes same shall be enclosed in a standard booth constructed in accordance with the requirements elsewhere in this ordinance provided. A so-called "portable booth" shall not, within the meaning of this ordinance be considered as fulfilling this requirement.

**SECTION 982.** (a) The cleaning or washing of motion picture films in or by means of ether, alcohol or other inflammable or combustible volatile liquids shall be done only in a "cleaning room" having outside ventilation and separated from the rest of the building by tight partitions, floor and ceiling of incombustible material with self-closing fire doors at openings. The receptacle containing the cleaning liquid shall be kept tightly closed except at apertures through which film passes during the process of cleaning, and whole apparatus, including receptacle, drying reels, etc., shall be completely covered by a ventilating hood equipped with a duct leading to outside air and provided with a mechanically induced draft sufficient to keep room free from objectionable vapors.

(b) Room shall be used neither for the storage nor handling of combustible material other than films and there shall be no more than three (3) reels at any one time in this room.

(c) In all other respects the equipment of this room shall comply with the requirements for the examination room.

**SECTION 983.** (a) The vault, examination room, shipping room, projection room and cleaning room, as required by the foregoing provisions of this ordinance, shall each be equipped with



approved automatic sprinklers, which shall be installed in conformity with the requirements elsewhere in this ordinance provided, with the exception that one water supply of ample quantity at sufficient pressure, if approved by the Superintendent of Buildings, shall be considered adequate.

(b) Each room in which motion picture films are manufactured, printed, developed, kept, stored or used, exclusive of vault, shall be equipped with approved 2½-gallon chemical extinguisher, pails of water and pails of dry sand, subject to the approval of the Fire Marshal.

(c) It is hereby made a misdemeanor to smoke in any room containing films, and signs shall be posted in conspicuous places to that effect.

**SECTION 984.** None of the provisions of this ordinance shall be construed as prohibiting the use interchangeably of either the examination, shipping, projection or repair room for any of the processes necessary to the operation of a film exchange; provided that no two different processes are carried on simultaneously and and that the provisions of this ordinance applying to each process be complied with.

**SECTION 985.** It shall be unlawful for any person, firm or corporation to take or carry into any building within the corporate limits of the City of Seattle or to carry or transport anywhere, within such limits, any motion picture film or films unless the same be contained in a metal box, can or other approved receptacle with cover securely tied or otherwise fastened. Each such receptacle shall be conspicuously labelled as containing inflammable films.

**SECTION 986.** The provisions of this ordinance, except as provided in Section 977, shall be construed to apply equally to buildings or places heretofore or hereafter established for the manufacturing, printing, developing, keeping, storing or using of motion picture films; providing, however, that the Superintendent of Buildings and the Fire Marshal jointly in their reasonable discretion may waive the reconstructing in whole or in part of vaults, examination rooms, cleaning rooms, shipping rooms and projection rooms, in such buildings or places existing at the time of the passage of this ordinance.

## PART X. MISCELLANEOUS PROVISIONS.

### DWARF PARTITIONS.

**SECTION 1001.** Dwarf partitions or screens of wood or of wood and glass, not exceeding 8'0" in height, may be constructed in any building or on any balcony therein, provided, the aggregate length of such partition or screens in any room does not exceed ½ the sum of the lengths of all enclosing walls of said room.

If the space enclosed by such dwarf partitions or screens be covered, such coverings shall be constructed in the manner required for floor construction in mill buildings. Partitions exceeding 8'0" in height or leaving less than 6 inches clear space underneath the ceiling will not be considered as dwarf partitions, but must be built in accordance with the provisions governing partitions in the class of buildings in which they are constructed.

### INTERIOR BALCONIES.

**SECTION 1002.** Balconies may be constructed in rooms used for stores, warehouses, factories, workshops and offices, subject to the following conditions. There shall be not less than 8'0" of perpendicular space between floor and ceiling, when the space is to be subdivided or enclosed and used for offices or for continuous occupation by laborers of any class and such space shall be properly ventilated. Such balconies when used for storage or display of goods, may be of less height if approved by the Superintendent of Buildings.

No balcony shall cover more than 50 per cent. of the floor area of the room in which it is constructed.

If the area of any balcony exceeds 30 per cent. of the floor area of the room in which it is located, the portion in excess of 30 per cent. of the room floor area shall not project into such room more than one-half of the width of the room.

Balconies shall be so constructed as to sustain 50 pounds or more of live load to the square foot.

Balconies in fireproof buildings may be constructed with iron or steel beams and supports, with a floor of not less than 1¾ inches tongued and grooved flooring, covered directly on the under side with metal or metal lath and cement plaster.

Balconies in Mill, Ordinary Masonry or Frame Buildings may be constructed with wood floor beams and supports not less than 4 inches in their least dimensions, or may be hung to the floor beams above with iron rods, if such floor beams are of sufficient strength to carry the added load, and the floors of such balcony may be of not less than 1¾ inches matched flooring in Mill Buildings and not less than ¾-inch matched flooring in Ordinary Masonry and Frame Buildings.

Stairs leading to interior balconies may be constructed of wood with stringers and treads not less than 1¾ inches thick.

### EXTERIOR APPENDAGES.

**SECTION 1003.** All dormer windows, bay windows, towers spires, ventilators, pent houses, exterior balconies, cornices, mouldings and other like appendages on buildings other than frame buildings, shall be constructed of fireproof materials or have all exposed surfaces completely covered with sheet metal with lock joints, or with slate or tile, or with metal lath and cement plaster.

Balconies or bay windows on fireproof buildings shall be constructed throughout of fireproof materials and on Mill Buildings more than four stories in height, shall have all supports constructed as required for fireproof buildings, and all exterior woodwork except doors, sash and frames, shall be covered with slate or metal with lock joints, or with metal lath and cement plaster not less than ⅝-inch thick.

Cornice lookouts, except in frame buildings, shall be of iron or steel well secured to the walls. Walls shall be carried up to the top of cornices.

Hollow cornices, except on frame buildings, shall have fireproof divisions built in opposite each division wall in the building.

Not less than 60 per cent. of the weight of each stone in a stone cornice shall be back of the face of the wall, unless proper



and sufficient means of support and anchorage are provided and approved by the Superintendent of Buildings.

Every skylight on the roof of any building, other than a frame building and not exceeding the height limit for mill buildings, shall have the side, sashes and frames constructed of metal, or of wood, metal clad on all exterior surfaces. Every skylight on any building of greater height shall be entirely of incombustible material.

Every skylight shall be provided with a ventilation opening having an area of at least 3 per cent. of the base area of the skylight, except as otherwise provided in this Code.

The glass in all such skylights, except in places of habitation not exceeding three stories in height, shall have properly supported at least 6 inches over the same, a strong wire netting with wire not lighter than No. 12, galvanized after weaving, and with mesh not coarser than one by one inch, unless the glass contains a wire netting within itself.

**SECTION 1004.** No balcony or bay window shall be more than 11'0" in width, or extend more than 2'0" beyond the street line, or be less than 15'0" above the established grade, or approach nearer than 4'0" to any party line, or project into any alley.

Pent houses over stairs shall not exceed 10'0" and over elevators 28'0" in height above roofs.

The projection of cornices and belt courses beyond the building line into public thoroughfares other than alleys, shall be limited as follows: From a height of 6 feet to 15 feet above established grade, the projection shall not exceed 8 inches; between 15 and 30 feet above grade, the projection shall not exceed 2'0"; above the last named height the projection may increase at the rate of one inch for each 3'0" of added height to the maximum projection of 5'0". Where cornices or belt courses approach the grade on sloping streets, their height above established grade shall be as approved by the Superintendent of Buildings. Projections over any alley line shall be limited to 8 inches between a height of 6 feet and 20'0" above alley grade, and above the latter elevation shall be limited to 1'0", except that cornice returns of not more than 6'0" in length may project as in streets.

Brackets projecting more than 14 inches over a street line shall be not less than 10'0" above the established grade. No part of any hood over any entrance shall project more than 2'0" over a street line or be less than 10'0" above the established grade.

Projections into the line of a public street, not exceeding 8 inches, in the form of buttresses, pilasters or similar architectural embellishments, may be permitted in the discretion of the Superintendent of Buildings, provided that no such projection shall be in the nature of a show window or the lower or upper steps of a flight of stairs.

#### WINDOW CLEANER ATTACHMENTS.

**SECTION 1005.** Every window having its sill more than 12'0" above the grade and so constructed that it is usual or necessary for a person to stand on the outside sill or ledge in order to clean the window, shall have securely fastened to each jamb an approved anchorage for a window cleaner's safety device or attachment.

#### DOWN SPOUTS.

**SECTION 1006.** All buildings now or hereafter erected fronting on a street, shall be kept provided with proper leaders for conducting water from the roof to the ground, and connected with a sewer, street gutter or dry well in such manner as to protect the walls and foundations of any building from damage, and in no case shall water from roofs be allowed to flow into gutters in the First or Second Building Districts, or to flow upon sidewalks in any district.

#### FLAG POLES

**SECTION 1007.** Every flag pole shall have a diameter at base of not less than 1-50th of its height, and a diameter at the top of not less than 5-12ths of the diameter at the base, and shall if of wood, be of straight grain and free from loose knots, and shall be so braced, supported or stayed as to be capable of withstanding a computed wind pressure of 100 pounds to the square foot of the pole surface.

#### SIGNS.

**SECTION 1008.** Every sign placed above the roof of any building shall be constructed of galvanized iron, or some other non-combustible material. Such sign shall be placed not less than 3'0" from the inner line of the fire walls, if any, and not less than 6'0" above the roof of the building. The vertical dimension of any roof sign other than illuminated roof signs shall not exceed 12'0". There shall be a space of not less than 6'0" between all uprights and between all braces of every roof sign, and a clear space of not less than 5'0" between each end of such sign and any fire wall parapet, or edge of roof adjacent thereto. All framework and bracing shall be of angle iron or wood covered with galvanized iron, or other non-combustible material, and shall be so fastened to the roof and so constructed throughout as to be capable of withstanding a computed wind pressure of not less than 40 pounds to the superficial foot.

(The maximum height prescribed above for roof signs is held to mean the height of the sign proper.)

**\*SECTION 1009.** An illuminated roof sign is a sign erected and maintained upon or over the roof of any building, and having letters in an outline of incandescent lamps, or having painted, flush or raised letters; or having a border of incandescent lights attached thereto and reflecting light thereon; or a transparent glass sign lighted by electricity or other illuminant.

Every illuminated roof sign shall be constructed with steel skeleton construction so as to prevent a surface to be affected by wind pressure which shall not exceed 50% of the face of the sign. The framework thereof shall be entirely of metal or some other equally incombustible material, except that the material to which the framework of any such sign shall be anchored, may be substantial beams anchored or securely fastened to the roof or walls of the building upon or over which any such sign is erected.

\*(A bond of \$1,000 only is required for an illuminated roof sign having a total height above the roof surface of not more than eighteen feet.)

The distance between the roof of said building or structure and the lower edge of such sign shall not be less than 5'0". The height of any such sign from the roof of the building or structure to which the same is anchored or attached shall not exceed 45'0". No such sign shall be closer than 6'0" to the edge of the roof of the building or structure upon which it is erected. No illuminated roof sign shall be constructed on any building or structure which is over eight stories in height. Any illuminated roof sign less than 12'0" in height shall be held to be governed by the provisions relating to billboard and signboards.

No illuminated roof sign shall be erected or maintained until proper plans and specifications for the same shall have been approved by the Superintendent of Buildings and the City Electrician.

All signs shall be constructed, erected and maintained of sufficient strength to withstand a wind pressure of 30 pounds per square foot of surface without stressing the material beyond the safe limits of stress given elsewhere in this Code. It shall be the duty of the Superintendent of Buildings to make an inspection annually of each illuminated roof sign erected or maintained under the provisions of this Code for the purpose of ascertaining whether such sign is safe and secure.

Every illuminated roof sign constructed, erected or maintained under the provisions of this ordinance shall have the name of the owner thereof placed thereon in a legible and conspicuous manner. No person shall be permitted to erect or maintain an illuminated roof sign unless he shall execute and file with the City Clerk, with sureties to be approved by the Superintendent of Buildings, a bond to the City of Seattle in the penal sum of ten thousand dollars (\$10,000), conditioned to indemnify and save the City and its officers and agents from any damage, costs or liability whatsoever connected with or resulting from such sign, and further conditioned to comply with this Code and all other ordinances relating to such signs.

The permission and authority herein granted shall cease at any time hereafter at the reasonable discretion of the Mayor. In case of the termination of the privileges herein granted by the exercise of the Mayor's discretion as aforesaid, all such electrical signs shall be removed at the expense of the owner or owners of the building or the person who is then maintaining same, without any cost or expense to the City of Seattle; provided, that in the event of the failure, neglect or refusal on the part of the owner of the building or structure upon which said illuminated electric sign is constructed or the person operating and maintaining said electric sign, to remove said electric sign upon the revocation of the permit by the Mayor, as herein provided, the Superintendent of Buildings shall proceed to remove same and charge the expense thereof to the owner of the building or structure upon which said illuminated electric sign is constructed or to the person operating or maintaining same.

**SECTION 1010.** No attachable sign, framework, boards, cloth or other material to or on which any sign, advertisement, picture or notice is painted, printed, posted, made, impressed, affixed or fastened shall hereafter be constructed, affixed or maintained upon the outer wall of any building higher than the fire wall, or in

front of any standpipe or fire escape or across or in front of any exterior window or other exterior opening above the first story thereof.

**SECTION 1011.** All signs placed on any building, or part thereof, above the sills of the third story windows, shall be made with a facing of metal or asbestos board, and no sign of wood, cloth or other combustible material shall be more than 2'0" in width, and no sign other than an electric sign shall project more than 3'0" over or be less than 8'0" above the sidewalk.

#### BILL BOARDS.

**SECTION 1012.** All bill boards and other structures for posting, painting, tacking or exhibiting advertising of any kind within the First, Second and Third Building Districts shall have metal supports and shall be constructed of or faced with metal or other incombustible material. The vertical dimensions of such billboards except those on top of buildings, shall not exceed 20'0". Bill boards shall not be placed one above another so that the total height exceeds the maximum height prescribed in this Code.

All billboards shall be so constructed, braced and maintained as to withstand a lateral wind pressure of 30 pounds to the square foot. They shall be regularly inspected by the owners and kept in good repair so that they will not become unsightly or dangerous.

Before any permit for the erection of a bill board shall be issued, the person applying for such permit shall execute and file with the City Comptroller a bond with good and sufficient sureties, to be approved by the Mayor and City Comptroller, in the sum of not less than \$1,000, conditioned to save the city harmless from all claims, actions and damages of every kind which may accrue to or be suffered by the City or any person by reason of the defective construction or maintenance of such bill board, or by reason of the negligent use and occupation thereof.

(See Ordinance 36558 page 185 repealing conflicting requirements.)

#### FENCES.

**SECTION 1013.** Fences between lots shall in no case be more than 6'0" high above the grade of the highest lot, unless constructed of wire netting with not less than 2-inch mesh.

#### TENTS AND COVERED WAGONS.

**SECTION 1014.** It shall be unlawful for any person to erect maintain, use or occupy within the First or Second Building District, or within 15'0" 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 for any purpose other than lodging, any tent, or canvas covered wagon or other vehicle.

#### SHEDS.

**SECTION 1015.** Within the First and Second Building Districts, storage sheds may be erected and occupied as in this section provided, but not otherwise.

Such sheds shall not exceed 15'0" in height above the lowest street or alley grade adjoining the property upon which such shed is located.

The frame work of such sheds shall be constructed entirely of iron or steel, resting on masonry footing or piers, or upon piles and capping over tide water.

The roof covering shall be of galvanized iron or of shiplap not less than 7/8-inch thick, and covered with incombustible roofing as required in Frame Buildings.

The outside walls may be covered with galvanized iron, fastened to the frame with metal fastenings, and shall extend to the ground.

The floors may be constructed of not less than 2" plank resting on floor joist not less than 2 3/4 inches thick, and supported by masonry piers, or piles and capping over tide water.

No partitions shall be allowed in such sheds except for an office for the shipping clerk, not more than 10'0" square, and the partitions enclosing such office shall be of galvanized iron, fastened to an iron or steel framework with metal fastenings.

Such sheds shall be used only for the purpose of storing therein of incombustible merchandise, and in no case shall such sheds be used for any other purpose, or for retailing therefrom the articles allowed to be stored therein, except by consent of adjoining property owners, and approval of the Superintendent of Buildings.

The permit for the erection or occupancy of such sheds shall specify the goods to be stored therein, or the use to be made thereof.

#### TEMPORARY BUILDINGS.

**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 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 story in height, to be used for the purpose of holding religious services therein, convention halls, carnival, 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 90 days 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 thereof 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 restore said premises to a sanitary condition, 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.

#### SAFEGUARDS DURING CONSTRUCTION.

**SECTION 1017.** In all buildings having more than 3 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 2 stories 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 of masonry shall be constructed unless there be the permanent floor 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 3 stories in height, temporary plank stairs of not less than 5 inch run and not more than 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.

**SECTION 1020.** Not more than 2 workmen or other persons shall ride on any hoisting elevator used for hoisting material dur-

ing the construction, alteration, repair or demolition of any building, except before or after working hours, and then only when the foreman or contractor is in charge of such elevator.

**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 or 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 Building.

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 of an inch in diameter. All such scaffolding or staging shall be equipped with block and tackle of the best material obtainable.

#### MACHINERY GUARDS.

**SECTION 1024.** In every factory, workshop or other structure where machinery is employed, the belting, shafting, gearing and every other mechanical device when so located as to endanger the lives and limbs of those employed therein, while in the discharge of their duties, shall be as far as practicable so covered and guarded as to insure against any injury to the employees.

#### ALTERATIONS AND REPAIRS.

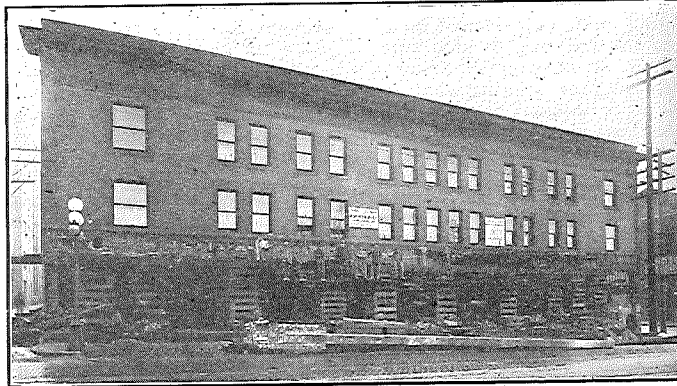
**SECTION 1025.** Alterations and repairs to any extent may be made to any building, provided the resulting building after such alterations and repairs complies with the requirements of this Code for new buildings. In all other cases alterations and repairs shall conform to the provisions of this part of the Code.

**SECTION 1026.** 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, provided the resulting building, after such alterations and repairs, is as safe as it was before.

Whenever any part of any existing building is taken for public use by condemnation, the remaining portion of such building may be repaired with the kinds of materials and construction used in such remaining portion, or, if there is sufficient ground on the same lot or premises upon which such building stands, the same may be moved as far as may be necessary to clear that portion of the lot or premises taken for such public use.

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





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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 1027.** If it is desired to make alterations or repairs to any building of a greater height than this Code permits for such buildings, such alterations or repairs shall be subject to such reasonable regulations as the Superintendent of Buildings may approve,—provided they do not tend to increase the existing fire hazard.

If it is desired to make alterations or repairs to any building that is seriously deficient in means of egress or in provision for light, air and ventilation or is structurally weak, the remedying of some or all of these deficiencies may be required as a condition precedent to permission for making such alterations or repairs.

**SECTION 1028.** Any fireproof building, if the Superintendent of Buildings shall so approve, may be altered or repaired with the kinds of materials and construction originally used in such building,—provided the resulting building after such alterations and repairs, is as safe as it was before.

**SECTION 1029.** Any mill building in the First or Second Building District not in compliance with this Code, may be altered or repaired with the kinds of materials and construction required for fireproof or mill buildings, provided the resulting building, after such alterations and repairs, is safer than it was before, and provided the height of such building is not increased beyond the limits prescribed in this Code for the respective building districts. No alterations or series of alterations aggregating more than 20 per cent of the value of any such building shall be made unless the means of egress and provisions for light, air and ventilation be made equivalent to the requirements of this Code.

**SECTION 1030.** Any mill building in the Third or Fourth District may be altered or repaired with the kinds of materials and construction originally used in such building, provided the resulting building after such alterations and repairs is as safe as it was before, and provided the height of such building shall not be increased beyond the limits prescribed by this Code.

**SECTION 1031.** Any ordinary masonry building in the First or Second Building District not in compliance with this Code, may be altered or repaired with the kinds of materials and construction required for fireproof or mill buildings, provided the resulting building, after such alterations and repairs, is safer than it was before, and provided the height of such building shall not be increased in the First Building District, nor be increased beyond the limits prescribed in this Code in the Second Building District.

No alteration or series of alterations aggregating more than 20 per cent of the value of such building shall be made unless the



means of egress and provisions for light, air and ventilation be made equivalent to the requirements of this Code.

No alterations or series of alterations aggregating more than 20 per cent of the value of such buildings shall be made in any period of 12 months in the First Building District, nor more than 40 per cent in a like period in the Second Building District.

**SECTION 1032.** Any ordinary masonry or frame building in the Third or Fourth Building District not in compliance with this Code may be altered or repaired with the kinds of materials and construction required in the respective districts, provided the resulting building, after such alterations and repairs, is as safe as it was before, and provided the height of such building is not increased beyond the limits prescribed in this Code.

**SECTION 1033.** Any frame building in the First or Second Building District may be altered or repaired with the kinds of materials and construction required for fireproof, mill or ordinary masonry buildings, provided the resulting building, after such alterations and repairs, is safer than it was before, and provided the means of egress and provisions for light, air and ventilation are made satisfactory, and provided the height of such building shall not be increased.

No alterations or series of alterations aggregating in value more than 20 per cent of the value of such building shall be made in any period of 12 months, and the total value of such alterations and repairs shall not exceed 50 per cent of the value of such building in any period of time.

**SECTION 1034.** The value of a building, to which reference is made in connection with alterations or series of alterations, is the value of the building about to be altered just before such alterations or series of alterations are commenced, subsequent to the enactment of this Code.

**SECTION 1035.** Nothing in this Part shall be construed to prevent the Superintendent of Buildings from requiring unsafe or dangerous structures to be made safe under the powers granted elsewhere in this Code.

#### APPRAISAL OF FIRE LOSSES.

**SECTION 1040.** When any non-fireproof building within the First or Second Building Districts, shall be damaged by fire or the act of God, it shall be the duty of the Superintendent of Buildings, within 24 hours after such damage occurs, to visit and inspect the premises where such building existed and within three days thereafter, to make an estimate of the actual value of such building at the time such damage occurred and of the amount of damage sustained by such building, and enter such estimates in the records of his office, and he shall mail a copy of such estimate to such owner in a sealed envelope, postage thereon being fully prepaid, or in case the name and address of the owner is unknown, shall post a copy of such estimate in a conspicuous place upon the premises.

In case the estimated damage to buildings having masonry walls, and situated within the First, Second or Third Building District, shall exceed 50% of the estimated value of the building, it shall be unlawful for any person to repair, reconstruct, or use

such building unless such building shall be reconstructed as required by this Code for new buildings. In case the estimated damage to buildings without masonry walls, and situated within the First Building District shall exceed 30% of the estimated value of the building, and in case the estimated damage to buildings without masonry walls, situated in the Second or Third Building District, shall exceed 40% of the estimated value of the building, it shall be unlawful for any person to repair, reconstruct or use such building unless such buildings shall be reconstructed as required by this Code for new buildings.

If, however, the owner of any such building shall consider that the building is not, in fact, damaged to the proportionate extent as estimated by the Superintendent of Buildings, he shall have the right to appeal from such estimate to the Board of Appeals, in the manner provided by this Code, and if upon the determination of such appeal the action of the Superintendent of Buildings shall be sustained by the Board of Appeals, it shall be unlawful to proceed with the repair or reconstruction of, or to use such building; otherwise the necessary repairs may be made to such building subject to the provisions of this Code governing alterations and repairs.

#### DEMOLITION OF BUILDINGS.

**SECTION 1041.** Whenever any building shall be demolished, the roof and each upper story shall be completely removed before the demolition of the next lower story is begun, and no material in excess of 50 pounds to the square foot shall be placed upon any floor of any such building in course of demolition, and all brick, stone, timbers and other structural parts of each story shall be lowered to the ground immediately upon displacement, and all dry mortar, lime, brick dust or other fine material shall, before and during removal, be wet sufficiently to prevent it from floating or being blown into the street or upon adjoining property, and all sidewalks shall be protected by fences and scaffolds as required by the ordinances of the City of Seattle relating to the protection of sidewalks during the erection of buildings.

#### ROOF TANKS.

**\*SECTION 1050.** It shall be unlawful for any person, to construct, maintain or allow, or permit to remain in or upon the roof of any building in the First, Second or Third Building District any tank of a larger capacity than four hundred gallons, unless such tanks shall rest upon a good and sufficient foundation of masonry; or upon iron girders set on steel plates which rest upon a good and sufficient foundation of masonry; or upon iron or steel or reinforced concrete construction. No tank of a capacity exceeding four hundred gallons shall be constructed in or upon any building without first submitting for the approval of the Superintendent of Buildings a complete set of plans, showing the con-

\*At a session of the Board of Appeals held November 5, 1913, Seattle Trust Company for the Ballard estate, appellants, it was resolved that existing roof tank supports need not be brought within the requirements of the Building Code, and that it was deemed inconsistent to consider that portion of the Code requiring stud or masonry supports as retroactive.

struction in detail of the supports and foundations of such tank. If such plans be satisfactory to the Superintendent of Buildings, they shall be approved by him. The owner or his agent or the contractor erecting such tank shall before proceeding with the erection of such tank procure from the Department of Buildings a permit for the substructure work.

**SECTION 1096.** Any person who shall violate or fail to comply with any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be punished by a fine in any sum not exceeding \$100, or by imprisonment in the city jail for a term not exceeding 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 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 manner provided by law.

**SECTION 1098.** All ordinances or parts thereof in conflict with the provisions of this ordinance are repealed.

## ORDINANCE REQUIREMENTS INCIDENT TO BUILDING OPERATIONS NOT FOUND IN THE BUILDING CODE PROPER.

### BUILDINGS TO BE NUMBERED.

**ORDINANCE NO. 4635.**—As amended by Ordinance No. 33563, approved August 25, 1914.

**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 the same in legible figures not less than two (2) inches in length and one (1) inch in width. If any number shall have been theretofore placed 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 forth with 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.

### DRAINAGE.

**ORDINANCE 5675, SEC. 1.** Every owner and occupant of any land, building or premises within the city shall, at his own expense, properly drain and clean any and all vaults, cesspools, ditches, pipes or drains in or on any such land, building or premises used as a receptacle or conductor of filth or refuse matter. Every person owning, controlling, or occupying any such land, building or premises, shall be responsible for the proper draining and cleaning thereof, and of the vaults, cesspools, ditches, pipes and drains in and upon the same, and shall constantly keep the same in a healthy condition.

(The enforcement of this provision is incumbent on the Chief Sanitary Inspector of the Health and Sanitation Department.)

### SIZE AND VENTILATION OF SLEEPING APARTMENTS.

**ORDINANCE 15957, SEC. 41.** It shall be unlawful for any person to use, conduct or keep any lodging house, tenement house, hotel or any house or building containing sleeping apartments, or to allow or permit persons to occupy as sleeping apartments any

room or place which shall contain less than 512 cubic feet of air or space, or less than 64 square feet of floor space for each and every person over 14 years of age lodging or sleeping in any such sleeping apartments, or less than 300 cubic feet of air or space or 40 square feet of floor space for each child under 14 years of age, or which is not provided, while in use as such sleeping apartment, with a system of ventilation in continuous operation, so contrived as to provide 25 cubic feet per minute of outer air for each occupant thereof, exclusive of air consumed by combustion.

**ORDINANCE 15957, SEC. 42.** It shall be unlawful for any person over 14 years of age to voluntarily and continuously occupy or use as a sleeping apartment any room or place in any lodging house, tenement house, or in any house or building whatsoever, containing less than 512 cubic feet of air or space, or less than 64 square feet of floor space for each person occupying or using such room as a sleeping apartment.

#### SIZE OF ROOMS OTHER THAN SLEEPING APARTMENTS.

**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.

#### STREET CLOCKS.

**ORDINANCE 16081, SECTION 2, PARAGRAPH A—(As Amended by Ord. 29484, May 24, 1912).** It shall be unlawful for any person to construct, erect or maintain, in or on any public place, any street clock, without complying with the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Superintendent of Streets and Sewers so to do.

**ORDINANCE 16081, SEC. 2, PARAGRAPH B.** In order to obtain the permit provided for in the preceding paragraph, the owner or lessee of any premises abutting the public place where it is desired to construct, erect or maintain the said street clock, shall file with the Board of Public Works an application in writing therefor which application shall contain an accurate description of the portion or portions of the public place desired to be occupied and the plans and specifications of the clock which it is desired to place therein, including the proposed illumination of the same, which illumination shall conform with the regulations prescribed by the Superintendent of Streets and Sewers, and the Board of Public Works, if it shall find that such clock can be constructed and maintained without unduly obstructing such public place or interfering with the public utilities therein, or thereon, may, in its

reasonable discretion, authorize the Superintendent of Streets and Sewers to grant a permit to construct and maintain such clock.

#### AWNINGS AND MARQUEES.

**ORDINANCE 16081, SEC. 3, PARAGRAPH (A)—(As amended by Ordinance 29484, approved May 24, 1912.)** It shall be unlawful for any person to construct or maintain in or over any public place, any awning, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Superintendent of Streets and Sewers so to do, except that all permits for other than canvas covered awnings shall be issued by the Superintendent of Buildings when authorized by the Board of Public Works so to do.

**ORDINANCE 16081, SEC. 3, PARAGRAPH (AA)—(As amended by Ordinance 31148, approved April 16, 1913.)** Any person, firm, or corporation engaged in the construction or hanging of canvas covered awnings may, instead of procuring a permit as specified in Section 3 (a), upon application to the Superintendent of Streets and Sewers, procure a permanent permit to hang canvas covered awnings by maintaining a deposit of not less than fifty dollars (\$50.00) with the City Treasurer in the Guarantee Deposit Fund and agreeing to file with the Superintendent of Streets and Sewers on Monday of each week, a list of all awnings hung during the previous week, or to be hung; the deposit to insure the hanging of said awnings according to the conditions of ordinances governing the same, especially Ordinance No. 16081 and Ordinance No. 29484 and in case of failure or neglect of the person, firm, or corporation making such deposit complying with the conditions of above ordinances governing canvas covered awnings, the Superintendent of Streets and Sewers shall cause said awning to be removed from the public place and the cost thereof shall be deducted from the deposit. Any awning now existing or hung previous to or by virtue of this ordinance, which shall violate this ordinance or other ordinance regulating awnings, or become defective, shall, upon a reasonable notice from the Superintendent of Streets and Sewers so to do, be removed from over the public street. Pulling up or tying against a building will not be considered complying with the intent of this ordinance, but must be removed from the structure to which it is attached.

**ORDINANCE 16081, SEC. 3, PARAGRAPH (B)—(As amended by Ordinance 29484, approved May 24, 1912.)** In order to obtain the permit provided for in the preceding paragraph for other than canvas covered awnings, the owner or lessee of the premises abutting which it is desired to construct such awning, shall file with the Superintendent of Buildings, an application in writing therefor, which application shall contain an accurate description of the portion or portions of the public place desired to be occupied, together with plans and specifications of the awning which it is desired to construct or maintain therein, and if the Superintendent of Buildings shall find that said application and the plans and specifications conform with the regulations of the ordinance covering strength, safety, material and design of such awnings, he shall endorse his recommendation thereon, and refer to the Superintendent of Streets and Sewers and if the Superintendent of

Streets and Sewers shall find that said awnings can be constructed and maintained without unduly interfering with, or obstructing the use of such public place, he may in his reasonable discretion recommend to the Board of Public Works that a permit be granted, and the Board of Public Works, after a public hearing in the matter, may in its reasonable discretion, authorize the Superintendent of Buildings to issue the said permit.

**ORDINANCE 16081, SEC. 4.—**(As amended by Ordinance 36865 approved January 3, 1917.) **SECTION 1.** That section 4 of Ordinance No. 16081, as amended by Ordinances Nos. 19346, 29484, and 32515, be and the same is hereby further amended to read as follows:

**SECTION 4.** All awnings to be constructed or maintained under the provisions of this ordinance shall be constructed either of a metal frame, with canvas covering, or of a metal frame with sheet metal or wire glass or super-glass covering; provided, however, that art glass in panels not more than 18 inches wide, the panels to be supported by the metal framework of the awning, and to be composed of small panes of glass not larger than 36 square inches each in area, assembled in copper or zinc may be permitted as a covering for such awnings, if protected by a stout wire screen of not more than 1 inch mesh, stretched tightly across the upper side of such awnings, and securely fastened in such a manner as to protect the glass from breakage; and provided that plain sheet metal shall not be thinner than 22 gauge nor more than 2 feet wide between supporting ribs and shall be well fastened to supports. The lowest point of any awning shall be not less than eight (8) feet above the sidewalk, and no cloth, drapery, sign or other thing shall be added, attached to or suspended from such awnings. The frames and supports of all awnings shall be securely attached to the walls of the building from which they project by metal brackets, chains or rods, and shall not be supported by posts or similar devices projecting into, or erected upon the street, except as hereinafter provided. All awnings other than canvas covered awnings shall be of such design and construction as to sustain with safety, in addition to the dead weight of the awning, a live load of not less than thirty (30) pounds per square foot of area. All awnings other than canvas covered awnings shall be provided with metal conductors for water, which conductors shall drain back to the property line and be connected with the sewer in the manner provided by the plumbing ordinances of the city. All awnings shall be reasonably uniform in appearance and ornamental in design and shall project as nearly horizontal from the building to which they are attached as is practicable, and shall be well lighted with electricity, according to the direction of the Superintendent of Streets and Sewers. Except as hereinafter provided, no awning shall project more than nine (9) feet from the property line. No awning shall be attached to or suspended from any building unless the strength of the building is such as to sustain with safety the awning and a live load of not less than thirty (30) pounds per square foot applied uniformly over the area of the awning; provided, however, that in the case of an awning extending to the curb, as hereinafter provided, when the strength of the building is such that the awning cannot be suspended from it with safety, as provided herein, the Board of

Public Works may permit the awning to be supported by not more than two (2) ornamental iron or steel posts, located at the curb line. No awning and no post supporting any awning shall be constructed at such location or in such manner as to obstruct, or interfere with any street cluster light, and to this end there shall be a clearance between any awning and any street cluster light of not less than five (5) feet horizontally and three (3) feet vertically. On buildings in the wholesale district awnings may be allowed to extend to the curb, and in the retail district a portion of any awning fifteen (15) feet wide immediately opposite the entrance to a store or building may be, in the discretion of the Board of Public Works, extended to the curb; and provided, that any awning in front of a public market may be allowed to extend to the curb with such number of supports of such construction as may be approved by the Board of Public Works.

**SECTION 2.** This ordinance shall take effect and be in force thirty days from and after its passage and approval, if approved by the Mayor; otherwise it shall take effect at the time it shall become a law under the provisions of the city charter.

#### AREA WAYS OR VAULTS UNDER SIDEWALKS.

**ORDINANCE 32578, SEC. 3.** Passed February 9, 1914, (Sections 5, 6 and 7 of Ordinance 16081 repealed). No area way shall be constructed or maintained under or beneath any public place unless the same shall be constructed and covered in such a manner and with such material and of such strength as hereinafter provided.

In the case of area ways built in connection with new buildings, it shall be required that the plans and specifications thereof be submitted to the Superintendent of Buildings for examination, and that his endorsement in writing be made upon the application for the permit hereinbefore described.

All area ways shall be enclosed in walls of masonry, or of masonry and iron or steel, with sidewalks over area ways constructed of like material, except as hereinafter provided.

The walls of area ways must be so constructed as to safely withstand all the forces exerted against, upon, or under them, and such walls shall not be deemed to be reinforced by bracing to a building unless all the portions of said building and bracing upon which dependence is placed, are fireproof and properly protected against corrosion.

In designing area walls, the following assumptions shall govern

- (a) That the angle of repose of the filling is not more than  $32^{\circ} 42'$ . 2 on 3).
- (b) That the weight of the filling is not less than 120 pounds per cubic foot.
- (c) That the traffic load or surcharge on the surface of the public place is 200 pounds per square foot.
- (d) That the total horizontal pressure in pounds per lineal foot of wall is not less than that found by the formula.

$W H^2$

7 where "W" equals 120 pounds and "H" equals actual height of wall in feet plus 1.66 feet.

- (e) That the above total horizontal pressure acts at a point below the top of the wall equal to not more than two-thirds the height.

All area walls located at the curb line shall be at least 17" thick at the top.

Walls depending solely upon their mass for stability, commonly called "gravity walls," shall be increased in thickness from the top downward not less than 6" in every 2'0", by being battered on their exposed face. If there be cross walls of masonry at least 8" thick, spaced not over 20 feet apart and so built as to substantially brace the same, the area way wall shall be battered at least 3" in every 24". Such increase in thickness may be secured by being "stepped" or "offset," provided the strength of the wall and its resistance against overturning be maintained equal to that of the battered wall as hereinbefore described. All such walls shall rest upon footings 50% wider than the base of the wall and not less than 8" high nor reduced more than 6" for each foot of height of the footing.

In the construction of area walls and sidewalks, in addition to the requirements herein set forth all the requirements of Ordinance No. 31578 and all amendments thereto shall be deemed to apply and govern in so far as they may be applicable.

Sidewalks over area ways shall be of sufficient strength irrespective of the top 1" of their thickness, to sustain safely a live load of 300 pounds per square foot of their surface.

Concrete used in arches or reinforced walks shall be mixed in the following proportions, namely: 1 barrel of cement, 8 cubic feet of sand and 16 cubic feet of gravel. The wearing surface shall consist of 1 part cement to 1½ parts of sand, and shall be ¾" thick, colored to a uniform color with ¾ of a pound of lamp-black to 1 barrel of cement.

Where "I" beams or expanded metal is used there shall be at least 4" of concrete and topping inclusive, in the clear between the reinforcing steel and the surface of the walk.

Prism lights shall not be over 3" square and not less than 1" thick and when set in the walk on grades exceeding 8% shall have at least 3" of cement in the clear between the lights at right angles to the curb, raised ¾" above the surface of the walk.

Ventilators may be constructed if securely covered by a wrought iron grating or other substantial metal covering with openings not to exceed 1" in width and placed next to the property line and not extending more than 18" therefrom.

On grades exceeding 8% lights must be placed on the property line and not extend over 3'6" into the walk. No lights shall be placed in front of entrances where trucking is necessary and all lights shall be assembled and built at the time when, and the place where the walk is constructed.

Area way entrances, light wells or openings, except sidewalk elevators or doors constructed and maintained as provided for in this ordinance shall be constructed and maintained as follows:

Any sidewalks adjacent to the lot line of buildings of brick or stone or first class permanent structures now or hereafter erected, three stories or more in height above the main entrance, will be allowed on side hill streets when the grade of such street is more than 12%, such area way entrance, light wells and openings shall not extend in any case over thirty inches from the property line, nor to within 36" of the edge of any street or alley, and shall be guarded by a substantial metal railing of such strength as to afford protection to pedestrians.

Openings for fuel shall be allowed to be maintained as provided for elevator doors under section 10 of Ordinance 16081, providing when said openings for fuel or other purposes shall be so small as to be made in one single door. A metal guard shall be attached to said door in such a manner as to raise and lower automatically with the door. The city will furnish a plan for this construction.

No boiler or other dangerous apparatus or any explosive shall be places or stored in any area way or space under any public place.

Provided, that in extraordinary cases where large buildings are constructed, such changes may be made as will be approved by the Superintendent of Buildings, based on the best engineering methods, and

Provided, however, that in granting such permit, the said Board of Public Works shall reserve to the City of Seattle the right and privilege to thereafter maintain within said area way such conduits as may be necessary to properly supply with electric current such electric lights as may be maintained by the City of Seattle above such area way for public purposes.

#### WHOLESALE AND RETAIL DISTRICTS DEFINED.

ORDINANCE 16081, SECTION 10—(As amended by Ordinance 30603, approved December 31, 1912.) The words "Wholesale District," as hereinafter used, shall be held and construed to mean and include that certain portion of the City of Seattle lying within the following described limits, namely:

Beginning at the center line of Yesler Way opposite the east margin of Fourth Avenue South, and running thence south along the east margin of said Fourth Avenue South to the north margin of Jackson Street; thence east along the north margin of Jackson Street to the east margin of Fifth Avenue South; thence south along the east margin of Fifth Avenue South to the north margin of King Street; thence east along the north margin of King Street to the east margin of Sixth Avenue South; thence south along the east margin of Sixth Avenue South to the south margin of Massachusetts Street; thence west along the south margin of Massachusetts Street to the east margin of Railroad Avenue; thence northerly along the westerly margin of Railroad Avenue South to the center line of Yesler Way; thence east along the center line of Yesler Way to the place of beginning. The words "Retail District" shall be held and construed to mean and include all that part of the city lying outside of the "Wholesale District" as above described.



## SIDEWALK ELEVATORS AND DOORS

The maximum size of any sidewalk elevator in the "Wholesale District" shall not exceed 5'0" square or 3'6" in width and 11' in length, and the same shall be placed immediately adjoining the curb, and the lesser side shall be placed at right angles to the curb. The sides of such elevator shall be closed with gates, and ingress to and egress from the same shall be had through gates opened so as not to obstruct travel upon the sidewalks. The maximum size of any such elevator in the "Retail District" shall be 3'6" in width and 5'0" in length, and the same shall be constructed immediately adjoining the curb, and the maximum width of 3'6" shall be at right angles to the curb, provided, however, that in those cases where the area wall has been already built and there are physical conditions which render it practically impossible to place an elevator immediately adjoining the curb, the Board of Public Works may, in its discretion, after an examination of the premises, allow the frame of the elevator door to be placed not more than 15" in from the curb, the especial conditions being properly endorsed upon the permit therefor. Within the "Retail District," instead of elevators, permits may be granted for trap doors, not exceeding 3'0" in width, measured at right angles to the curb, and not exceeding 5'0" in length, and constructed immediately adjoining the curb, which doors shall be opened and used for the removal of freight, only during such hours and in such manner and under such terms as are hereinafter described for the operation of elevators in said "Retail District."

No elevator in the "Retail District" shall be operated between the hours of 9 o'clock a. m. and 9 o'clock p. m., except in case of emergency, in which case said elevators may be operated for a period not exceeding 15 minutes within the time between 9 o'clock a. m. and 12 o'clock noon, or a similar period of 15 minutes between the hours of 12 o'clock noon and 3 o'clock p. m. and during such operation there must be stationed on the sidewalk at such elevator a man charged with the care of such elevators whose sole and only duty shall be to guard such elevator. Said man shall also be on duty at any and all times when said elevator is in use whether by night or day.

All elevators or trap doors constructed or maintained under the provisions of this ordinance shall, when not in use, be securely closed by metal doors of sufficient weight and thickness and so constructed as to sustain a safe weight of 350 pounds per square foot, and all doors and hinges shall be so constructed that their surface will lie flat with the surface of the sidewalk, and will present no obstruction to traffic whatever, and shall be so roughened as to occasion no danger whatever to pedestrians.

## ORDINANCE NO 32988, approved April 22, 1914.

**SECTION 1.** No permit shall be issued by the Superintendent of Buildings of the City of Seattle for the construction, reconstruction, alteration or repair of any building or structure within the city unless provisions shall be made in the plans for such building or structure for the proper rat-proofing of the same as in this ordinance provided.

**\*SECTION 2.** Any building or structure hereafter erected which shall not be raised at least eighteen (18) inches above the level of the ground at all points, shall be required to have its foundation walls of concrete or of brick or stone laid in cement mortar or some other material which shall be of equal value for rat-proofing. If such walls shall be of brick they shall not be less than eight (8) inches thick, and if of concrete they shall not be less than six (6) inches thick. Such walls shall extend around the entire area to be occupied by the building or structure, and shall extend not less than eighteen (18) inches below the surface of the ground. The full floor area under such building must be covered by concrete not less than three (3) inches thick. If it is proposed to place flooring over any concrete floor area and not in direct contact therewith, such flooring shall be double, with wire netting of such form and quality as may be required by the Superintendent of Buildings between the two layers of such flooring, and no dead space shall be allowed between the two layers, and any such double floor shall be constructed throughout of tongued and grooved lumber, and the wire netting above specified shall be extended upon the walls not less than eighteen (18) inches: provided, that if there is no dead space between the wooden floors and the concrete layer, such flooring may consist of a single layer.

**SECTION 3.** No permit shall be granted by the Superintendent of Buildings for the reconstruction, alteration or repair of any building or structure unless provisions shall be made in the plans therefor for the proper rat-proofing of such building or structure in substantial compliance with the provisions of this ordinance as set forth in Section 2 hereof, when in the judgment of the Superintendent of Buildings it is practicable, desirable and necessary that such rat-proofing be done, but in no event shall such reconstruction, repair or alteration be permitted without full compliance with all the provisions of this ordinance where the cost and expense of such reconstruction, alteration or repair shall in the opinion of the Superintendent of Buildings equal or exceed 40 per cent of the value of the structure sought to be reconstructed, altered or repaired.

Repeals all conflicting ordinances. Penalties for violation, \$100 fine or 30 days' imprisonment, or both.

## BILLBOARDS.

## ORDINANCE NO. 36558.

**SECTION 1.** The term "Billboard" as used in this ordinance shall be held and construed to mean and include any billboard, bulletin board, sign board, electric or illuminated sign, frame work, fence, building or structure erected, constructed, maintained or used for advertising purposes whereon any poster, bill, printing, painting, device or other advertising matter of any kind whatsoever may be placed, stuck, tacked, posted, printed, painted, pasted or fastened. Each frontage of any billboard in whatever direction the same may face, and any billboard built upon another, shall be held to be a separate billboard.

\*(Miscellaneous out-buildings not containing grain nor other things which rats feed upon may have a removable wood floor of planks or boards laid loose directly on the ground and need not be rat-proofed.)

**SECTION 2.** The term "person" as used in this ordinance shall be held and construed to mean and include natural persons of either sex, associations, copartnerships and corporations, whether acting by themselves, or by a servant, agent or employee; the singular number shall be held and construed to mean and include the plural, and the masculine pronoun to include the feminine.

**SECTION 3.** Any person who shall maintain, post up or affix in any manner, or paint, print or write, or cause to be posted, affixed, printed, painted or written a notice or advertising upon any billboard is hereby declared to be a billposter.

**SECTION 4.** It shall be unlawful for any person to do billposting, or to exercise, carry on or engage in the occupation of billposting in the City of Seattle, without first having obtained a license so to do; provided, that no license shall be required of any person advertising any business, trade or occupation carried on or conducted in any building or structure which advertising is intended and designed to give publicity to the business, trade or occupation carried on or conducted within the building or structure to or from which such advertising is attached or displayed.

**SECTION 5.** Every billposter shall pay an annual license fee of two hundred and fifty (250) dollars and one (1) per cent of the gross income derived from his 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 by the license inspector of the city at all times for the purpose of determining the correctness of any statement as to gross receipts.

**SECTION 6.** It shall be unlawful for any person erecting, constructing, owning, maintaining or controlling any billboard to fail, neglect or refuse to cause the name of the person erecting, constructing, owning, maintaining or controlling such billboard at all times to be plainly marked, painted or outlined in a conspicuous place on such billboard.

**SECTION 7.** 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.

**SECTION 8.** All billboards hereafter erected in the First, Second and Third Building Districts of the city shall have adequate supports and shall be faced with metal or other noncombustible materials. All billboards, wherever erected, shall be so constructed, braced and maintained as to withstand a lateral wind pressure of thirty (30) pounds to the square foot.

**SECTION 9.** Billboards when attached to the front, sides or rear walls of any building so that the flat surface of the same is against the building, or when erected on the ground, if not

erected nearer than ten (10) feet to any building, structure or other billboard or public sidewalk, which are used to advertise the sale or lease of the property upon which they shall be erected, may be built of wood or other combustible material, and such billboards shall be exempt from the provisions of this ordinance, except that they shall be safely and securely fastened or anchored and shall be so constructed, anchored and fastened as to withstand the wind pressure specified in this ordinance; provided, that if such signs exceed twenty-four (24) square feet in area, a permit for the construction of the same must first be obtained from the Superintendent of Buildings, the application for which shall include the plans and specifications of such billboard and its supports and fastenings.

**SECTION 10.** The vertical dimension of all billboards hereafter erected, except those on top of buildings, shall not exceed thirteen (13) feet, and no billboard shall be constructed so that the total height exceeds fifteen (15) feet above the grade of the sidewalks or above the ground upon which the same is built, except as otherwise herein provided. All billboards shall have an open space of at least two (2) feet between the lower edge thereof and the ground, which space shall at all times be kept open and unobstructed, except that a baseboard not exceeding six (6) inches in width may be constructed and maintained between the lower edge of any such billboard and the surface of the ground. No billboard shall approach nearer than ten feet to the street line of any public street or place upon which any lot occupied by such billboard abuts or fronts, except as otherwise herein provided, nor shall any such billboard be erected or constructed nearer the street line than the building line of any building within fifty (50) feet of any such billboard, except as otherwise herein provided. In front of earth banks billboards may be permitted not exceeding twenty-five (25) feet in height, including the height of supports, but the top of any such billboard shall not be higher at any point than the top of the bank directly behind it if such bank exceeds fifteen (15) feet in height, nor more than twenty-five (25) feet distant horizontally from the face of such bank.

The provisions of this section that no billboard shall approach nearer than ten (10) feet to the street line of any street or public place upon which any lot occupied by said billboard abuts or fronts and that no billboard may be erected nearer the street line than the building line of any building within fifty (50) feet of any such billboard, shall not apply when it is desired to erect any billboard in front of or upon earth banks exceeding six (6) feet in height or adjacent to or over depressions or excavations exceeding six (6) feet in depth, but in such cases billboards may be erected as near the street line as such embankments or excavations may approach thereto.

The ends of all billboards in front of banks as described in this section shall be securely connected to the bank with lattice work of such construction as will be approved by the Superintendent of Buildings and the space underneath every such billboard shall be closed with a bulkhead or approved lattice work instead of being open as otherwise herein provided; provided, however, that billboards may be erected or maintained exceeding fifteen (15) feet, and not exceeding twenty-five (25) feet, in height above the

grade of the sidewalk and the ground upon which they are built under a permit from the Board of Public Works, as hereinafter provided. Said permit shall be granted only upon the written application of the applicant; shall contain the name of the applicant and the proposed location of any billboard proposed to be erected, together with the statement of the applicant that said billboard shall conform in all respects to the requirements of this ordinance. If it shall appear that such proposed billboard may be erected or maintained on the proposed location without injuriously affecting the health, safety or morals of the public, the Board of Public Works may grant such permit.

**SECTION 11.** Any billboard which may be or become unsafe or defective, and any billboard which may hereafter be 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 12.** 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 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 on said street line within a distance of two hundred feet of such billboard, and filing said written consent with the city comptroller; provided, however, if such buildings so used exclusively for residential purposes are less than three in number, or are more than two hundred (200) feet distant from such billboard, then it shall not be necessary to obtain such written consent.

**SECTION 13.** No person shall directly or indirectly post or cause to be posted, placed or maintained any advertising matter of any kind on or about any public or private building or property, structure, fence or street car without the written consent of the owner or agent thereof, nor shall and advertising matter of any kind be attached to or placed on any telegraph or telephone pole or tree or part thereof.

**SECTION 14.** No billboard anchored, fastened to, maintained or situated above or upon any roof of a building shall be placed so that the face of the same shall come within three (3) feet of the inner plane of the outer wall of such building, nor shall the same be constructed so that the bottom of such billboard shall be less than five (5) feet above the surface of such roof, nor the top thereof more than eighteen (18) feet above such roof. The face of such billboard shall not exceed thirteen (13) feet in height, nor shall the ends thereof approach nearer the outer wall of any building than five (5) feet. When two or more billboards are placed upon any building one above another the height of the same shall be measured as if they were but one. No such billboard shall be

placed so as to obstruct any fire escape or interfere with the operation of the fire department of the city, nor shall any such billboard be erected so as to cover any window opening or door in any building.

**SECTION 15.** It shall be unlawful for any person to exhibit, post or display, or cause or permit to be exhibited, posted or displayed upon any billboard, any statement, words or signs of an obscene, indecent or immoral nature, or any picture, illustration or delineation of any human figure in such detail as to offend public morality or decency, or of any lewd or lascivious act, or any other matter or thing of an obscene, indecent or immoral nature, or offensive to the moral sense, or of any murder, suicide, robbery, holdup, shooting, stabbing, clubbing or beating of any human being, wherein any such act is shown in a gruesome manner or detail, or any manner objectionable to the moral sense.

**SECTION 16.** Every person who shall erect, construct or maintain any billboard shall, at his own cost and expense, keep the ground on either side of the same clean and free from waste, filth, weeds or accumulations of any kind or nature.

**SECTION 17.** Every person engaged in the business of constructing, erecting or maintaining any billboard in the City of Seattle shall file with the city comptroller and ex-officio city clerk a surety company bond, approved by the mayor and city comptroller, in the sum of ten thousand dollars (10,000), 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.

**SECTION 18.** The restriction and requirements of this ordinance as to the payment of license fees, the dimensions of billboards, the distance above the ground, height, distance from buildings and other billboards, or from streets and other public places, shall not be construed as applying to the painting or affixing of advertisements on the walls of permanent buildings.

**SECTION 19.** The provisions of this ordinance in so far as the same affect electric or illuminated signs, shall not be construed as in any manner waiving the provisions of any existing ordinance or such as may hereafter be enacted relating to the construction and maintenance of such signs, when not in conflict herewith.

**SECTION 20.** From and after the first day of September, 1917, all billboards erected or maintained at the time of the taking effect of this ordinance shall be made to conform to the provisions and requirements hereof and as required from time to time by the Board of Public Works.

**SECTION 21.** Any person violating or failing to comply with any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and on conviction thereof, shall be fined in any sum not exceeding one hundred (100) dollars, or imprisoned in the city jail for a term not exceeding thirty (30) days, or may be both so fined and imprisoned.

**SECTION 22.** If any section, subdivision, sentence or clause of this ordinance shall be held invalid, such holding shall not affect the validity of the remaining portions of this ordinance.

**SECTION 23.** All ordinances or parts of ordinances in conflict herewith are hereby repealed.

**SECTION 24.** This ordinance shall take effect and be in force thirty days from and after its passage and approval, if approved by the Mayor; otherwise it shall take effect at the time it shall become a law under the provisions of the city charter.

## PLUMBING ORDINANCE

(Ordinance No. 22839)

Approved by the Mayor, December 29, 1909.

### ADMINISTRATION.

**SECTION 1.** The word "inspector" wherever used in this ordinance shall be held to mean and include the Commissioner of Health of the City of Seattle, or his duly authorized assistants. The word "person" wherever used in this ordinance shall be held to mean and include natural persons of either sex, associations, co-partnerships and corporations, whether acting by themselves or by a servant, agent or employe. The singular number shall be held to include the plural, and the masculine pronoun to include the feminine.

**SECTION 2.** It shall be unlawful for any person to begin or perform any work on the construction, reconstruction, alteration or repair of any plumbing or house drainage system, or systems of pipes for the conveyance, distribution or use of illuminating or fuel gas in any building in the City of Seattle, without complying with all the provisions of this ordinance in relation thereto, and obtaining and having a permit from the Commissioner of Health so to do, which permit must at all times during the performance of such work and until the completion thereof posted in some conspicuous place in the building wherein such work is being done; provided, however, that no permit will be required for the removal of stoppage in soil or waste pipes, provided a cleanout is inserted as in this ordinance provided, or for replacing broken fixtures, providing such fixtures conform to the regulations contained in this ordinance, nor for replacing tanks or faucets or repairing leaks in waste or water pipes.

**SECTION 3.** In order to obtain the permit provided for in the preceding section, the owner of the premises, or his authorized agent or the plumbing contractor employed to do the work shall file in the office of the inspector an application in writing for such permit, stating therein the number and kind of fixtures to be used in such work, the street and house number of the premises where the work is to be done, the name of the owner, and the name and address of the plumbing contractor, and containing an agreement that such work is to be done in accordance with the charter and ordinances of the City of Seattle.

Where plumbing is being done in several adjoining buildings or in apartment houses where the arrangement of pipes and fixtures is exactly the same in each, and all being done under one contract, one permit will be sufficient. In case city water is to be used in connection with any work for which a permit is required, as hereinabove provided, no permit shall issue until the owner of the

premises shall have applied and contracted for such city water as provided by ordinance, evidence of which to be furnished by the Superintendent of Water Works, shall accompany the application for the permit.

No permit issued under the provisions of this section shall be valid for a longer period than that specified in such permit, but such permit may be renewed or extended in the reasonable discretion of the inspector upon the proper application being made therefor prior to the expiration of the time originally limited therein. In case work shall not be done or completed within the time specified in the permit and no extension is granted, a new permit shall be taken out.

No permit shall be issued by the inspector until the following fees for inspection have been paid to the City Treasurer:

When the building contains from one to six plumbing fixtures the sum of 30 cents shall be paid for the inspection of each fixture, and for each and every additional fixture thereafter installed or for which waste or vent fittings are installed, the sum of 15 cents shall be the fee for inspection; provided, that from and after the first day of January, 1913, no fee for such inspection shall be charged or required.

The word "fixtures" as used in this ordinance, shall be held to mean and include all fixtures connected with drains or waste pipes that drain into and are connected with a sewer, cesspool or septic tank.

**SECTION 4.** When a permit has been issued for plumbing, gas fitting or house drainage work, the work done and the material used shall be under the supervision of the inspector at all times until its completion, and the inspector may stop any work and revoke said permit when the work being done, or the material used, is not in accordance with the provisions of this ordinance, and it shall be unlawful for any person to proceed further with said work without the written consent of the inspector.

**SECTION 5.** When a permit has been issued for plumbing, gas fitting or house drainage work, no additional work shall be put in without the approval of the inspector, and a new permit must be taken out covering all such additional work.

**SECTION 6.** When the roughing-in work of any plumbing or house drainage has been completed, and before any such work has been covered or in any way concealed from view, the same must be subjected to one of the following tests: By plugging all openings and filling with water to the highest point, or by pressure of air of not less than 15 pounds to the square inch (on a spring gauge to the satisfaction of the inspector, or a column of 7 inches of mercury on a mercury gauge). When work has been tested and proved perfectly tight, the inspector shall be notified that such work is ready for inspection, and it shall be the duty of the contracting plumber to see that all work is left open and convenient for inspection until inspected. The inspector shall inspect all work within three working days after having been notified that such work is ready for inspection, by causing the plumbing contractor to apply, in the inspector's presence, one of the above tests, such tests to include all soil, waste and vent pipes, brass ferrules and soldering nipples in connection with the work.

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**SECTION 7.** Any person doing work under the provisions of of this ordinance shall, when the work is ready for inspection, notify the inspector in writing, giving location of the premises and the time that the work will be ready for inspection, and if, upon inspection, the inspector finds the work or material used is not in accordance with the provisions of this ordinance, he shall notify the person doing the work, and also the owner of the premises, by posting a written notice upon the premises and mailing a copy of the same to the contracting plumber, and such notice shall be all the notice that is required to be given of the defects in the work or material found upon such inspection.

**SECTION 8.** When work is completed and all fixtures set, the Inspector must be notified in writing that the work is ready for final inspection, and the Inspector may require a final test of either smoke or peppermint, and no plumbing work shall be used until this inspection has been made and a certificate of approval has been issued to the plumbing contractor, owner or agent.

**SECTION 9.** In case, upon inspection, as provided in the preceding sections, it shall appear that the work already done or the material used does not in all respects conform with the provisions of this ordinance, the Inspector shall order such changes in workmanship or material as will make the same conform in all respects to the provisions of this ordinance, and the Inspector is hereby authorized and empowered, in all cases of failure, neglect or refusal to comply with such order on the part of any owner, agent or occupant, to condemn the building or premises as hereinafter in this ordinance provided.

**SECTION 10.** Whenever, upon inspection, any building or premises, or any part thereof, for any insanitary cause is found unfit for human habitation, the Commissioner of Health may require the vacation of said building, premises or part thereof, and a written order shall be conspicuously affixed and posted in the building or premises, and where practicable shall be served upon the owner, agent or occupant of such premises.

**SECTION 11.** It shall be unlawful for any person to fail, neglect, or refuse to comply with the order of the Commissioner of Health, or fail to vacate the premises upon being ordered so to do by the Commissioner of Health, as provided in the preceding section.

**SECTION 12.** The maintenance of any plumbing, gas fitting or house drainage system in an insanitary condition shall be deemed a nuisance, and the same shall be abated in the manner provided by law.

**SECTION 13.** The Inspector shall have free access to all buildings for the purpose of examining the same and all plumbing, gas fitting and house drainage systems therein, and ascertaining whether the provisions of this ordinance are being complied with and for such purposes shall, at all reasonable times, have a right to enter and inspect such buildings; and it shall be unlawful for any person to prevent or attempt to prevent any such entrance or inspection, or to obstruct or interfere with any such officer while engaged therein.

**SECTION 14.** Whenever the Inspector shall find any building or premises that are being kept, maintained or occupied in an insanitary condition, or in which plumbing is being installed in violation of, or not in accordance with the provisions of this ordinance, it shall be the duty of the Inspector, and he is hereby authorized, empowered and directed to notify the owner, agent or occupant thereof to cause said premises to be made to conform to the provisions of this ordinance, which notification shall be in writing and shall be served either on the owner, agent or occupant of such premises, or, in case the premises are unoccupied, may be posted on the premises, and it shall be unlawful for any person so notified to fail, neglect or refuse to comply with such notice.

#### DEFINITIONS.

**SECTION 15.** For the purpose of this ordinance the term "dwelling house" shall be held to mean and include any house, used by one or more persons for housekeeping, consisting of one or more rooms, having sleeping or cooking accommodations in connection.

The terms "apartment," "tenement," and "flat," shall be held to mean any suites or combinations of rooms consisting of two or more rooms used for housekeeping purposes, having cooking and sleeping accommodations in connection with each; wherever two or more such suites or combinations are located in one building, whether all are located on one floor or separate floors.

#### WATER CLOSETS; NUMBER REQUIRED.

**SECTION 16.** Every factory, workshop, school, dwelling house, apartment, store, or other place where any person is permanently employed, or where people congregate daily, must be provided with suitable water closet accommodations. Factories, workshops and stores shall have one water closet for each twenty persons, or fraction thereof, of each sex. School houses shall have one water closet for each twenty-four persons or fractions thereof of each sex. Water closets for stores must be located in an accessible and convenient place on the premises on which the store is located. Hotels, lodging and rooming houses shall have two water closets for every twenty-five rooms or fraction thereof; provided, however, that if there be more than twenty-five rooms, one water closet must be provided for every additional twelve rooms or fraction thereof. Water closets for the different sexes must be entirely separate.

Bunk houses, dormitories, and all large unpartitioned rooms used for sleeping purposes must have one water closet for every twenty-five single beds or their equivalent or fraction thereof; each dwelling house, apartment, tenement or flat must have at least one water closet and one sink for each family living in such dwelling house, apartment, tenement or flat; provided, however, that if more than ten persons live in any such apartment, tenement or flat, there shall be one additional water closet for each ten additional persons or fraction thereof. Water closets for apartments, tenements or flats must be located on the same floor as the respective apartment, tenement or flat they serve.

It shall be unlawful for any person engaged in improving any street or alley by grading, paving, laying conduits, gas mains, water mains, or railways, or erecting buildings on either public or private property, to not provide suitable temporary water closet accommodations, to the satisfaction of the Commissioner of Health, for the men employed by the contractor or person in charge of the work.

#### VENTILATION OF TOILET ROOMS.

**SECTION 17.** General water closet accommodations for tenement or lodging houses shall not be permitted in cellars or basements or under sidewalks. All rooms in which water closets or urinals are installed must be open to the outer air by means of a window, or ventilated light shaft; provided, however, where water closets or urinals are placed in stories, one or more of which is below the ground level, or in interior rooms, a vent duct of sheet metal and artificial light may be employed instead. Windows for rooms in which water closets or urinals are installed shall not be less than one foot in width and shall have an area of not less than one-twentieth of the total floor space of the room in which said fixtures are installed; provided, however, that in no case shall windows have an area of less than 432 square inches.

Light shafts used for the ventilation of toilet and urinal rooms shall have an area not less than one-twentieth of the combined area of the floor space of all such rooms opening therein.

Light shafts used for the ventilation of toilet rooms having skylight over, shall be ventilated by louvers, the total area of such louver opening shall be not less than the total area of said light shafts. Light shafts used for ventilating and lighting toilet rooms having more than three of their sides enclosed must have no connection with, or opening into rooms used for any other purpose. Rooms in which urinals or water closets are located shall be separated from all other rooms and hallways by substantial partitions extending to the ceiling; there shall be no opening or transom from adjoining rooms or hallways except door provided for entrance to same; provided, however, nothing in this ordinance shall prevent the use of stationary windows for lighting purposes in said partition. Doors for toilet rooms shall be provided with self-closing arrangements to keep same closed at all times when not in use. Vent ducts for rooms where water closets and urinals are located shall have an area equal to one-half of the square inch to every square foot of floor space of the room in which fixtures are located; provided, however, there shall not be allowed any vent duct less than 32 square inches in cross sectional area. Vent ducts from toilet rooms must be run separate to the outer air or to the roof, each room having a separate duct which in no case shall have any connection with, or opening into any other room except that several ducts may be connected into one ventilator at roof, such ventilator to be of an area equal to the combined area of all ducts connected thereto. Plans showing methods of ventilating all rooms and compartments of the building and location and kind of plumbing fixtures to be established, must be filed at the office of the Department of Health and Sanitation, before a permit is issued for the installation of any plumbing or drainage.

Mechanical ventilating systems, when installed for the ventilation of toilets, bath rooms and sleeping rooms, and when such appliances are connected and being operated at their normal capacities, shall be tested by the contractor or owner for volumetric efficiency in the presence and under the direction of the Commissioner of Health or his duly qualified assistants. The architects, or the person in possession or control of the same, shall notify the Commissioner of Health in writing when the said system is complete and ready for testing and inspection.

#### FIXTURES MUST HAVE WATER SUPPLY.

\*SECTION 18. Plumbing fixtures must never be connected to sewer, cesspool or septic tank unless a good and sufficient supply of water is furnished to thoroughly flush them at all times.

Water closets shall be supplied with water from a tank which is used for no other purpose. Each closet may be supplied from separate tanks or one general tank may be used for a number of closets. Tanks shall be arranged with float valves and be of sufficient size to deliver at least four gallons of water at each flushing. There shall be no direct connection between water closet bowls and house supply pipes. Flush pipes between water closets and tank shall not be less than 1¼ inches in diameter.

#### CESSPOOL AND SEPTIC TANKS.

SECTION 19. Soil and waste pipes from fixtures in houses where city sewer is not within 300 feet shall be carried to properly constructed cesspool or septic tank, such cesspool or tank to be constructed so as to meet the approval of the Commissioner of Health of the City of Seattle. Abandoned wells may be used as cesspools in localities where well water is not used for potable purposes, provided such abandoned wells be not located within a radius of 1,000 feet from any well, the water of which is used for potable purposes; provided, however, that no cesspool or abandoned well used for such purpose be located within 15 feet from any building. In case an abandoned well is to be used as a cesspool the owner of the property shall first obtain a permit from the Commissioner of Health to use such well for such purpose.

#### DRY CLOSETS.

SECTION 20. Privy sinks, pan or plug closets, iron hoppers, range or trough closets, or any closet having any mechanism in connection with the bowl forming a mechanical seal, are prohibited. Dry closets and vault closets will not be permitted where city water and sewers are within 300 feet, and all such dry or vault closets are hereby declared a nuisance. Water closets having trap set beneath the floor will be permitted only in outhouses.

\*The provisions of section 18 as to flush tanks for water closets has twice been made the subject of appeal to the Board of Appeals. See proceedings of the Board of May 3, 1911, in the case of Crane Co., appellants, and of June 21, 1912, J. S. Cote, appellant. These proceedings are on file and open to inspection at the office of the Superintendent of Buildings.

#### TOILET PAPER

SECTION 21. No paper other than what is commonly known as toilet paper shall be placed in any water closet or in any soil pipe.

#### CONDITIONS NOT COVERED BY THIS ORDINANCE.

SECTION 22. Where special fixtures are required, for which there is no provision in this ordinance, or when conditions arise that demand a deviation therefrom, the Inspector may, after an examination of the premises, permit such deviation from the provisions of this ordinance as in his judgment the condition demands, and must in such case issue a special permit in writing therefor, which shall fully describe the deviation permitted, which permit shall be posted on the premises.

#### SOIL AND WASTE PIPING.

SECTION 23. The term "main soil pipe" shall be held to mean and include the iron soil pipe receiving the discharge from water closets connecting to the sewer, cesspool or septic tank, 2½ feet outside of the building and extending in the most direct course to and through the roof. The term "waste pipe" shall be held to mean and include any pipe receiving the discharge from any fixture other than water closets. The term "main waste pipe" shall be held to mean the waste pipe connecting to the sewer, cesspool or septic tank 2½ feet outside of building and extending in the most direct course to and through the roof. The terms "branch soil" and "branch waste pipe" shall be held to mean and include any branch pipe connecting to the main line and extending either vertically or horizontally from same. For the purpose of this ordinance the term "vent pipe" shall be held to mean and include any pipe connected to any trap, soil or waste pipe for the purpose of preventing siphonage, relieving back pressure and preventing the fouling of traps seals by condensation of sewer air, and also for the purpose of creating a circulation of air through the soil and waste pipes. The terms "vented" and "ventilation" when used in reference to or in connection with traps, soil or waste pipes, will be held to mean and refer to such vent pipes as above mentioned.

SECTION 24. In all dwelling houses and all other buildings of two stories or less, the vertical main, soil and waste pipe shall be carried full size to a height of at least 10 inches above the main roof, except in the case of flat roofs, used for drying purposes, and in such cases they shall extend 7 feet above the roof and be suitably braced. In other dwellings, buildings three stories or more in height, the vertical main, soil or waste pipe must be carried up full size through and 10" above the main roof or may be carried to a point of convergence at either of the floors where branch soil and waste pipes may be carried to different points to receive the discharge from groups of fixtures; each of these branch soil or waste pipes becoming a main line from point of converging and must extend full size through and 10" or more above the roof. The size of these branches must be regulated according to the number and kind of fixtures discharging therein, as pro-

vided elsewhere in this ordinance, and in no case shall these branches be less than 2" in internal diameter. The main horizontal soil pipe where entering the building and from a point 2½' outside the foundation wall must be of sufficient size to receive the discharge of all fixtures connected thereto, according to the terms of this ordinance, and may be reduced in size in proportion to the various branch lines leading therefrom. When fixtures are placed in lean-to additions or any addition where the roof is lower than that of the main building, the vent pipe or soil pipe must never terminate within 15' of any opening of the house in which fixtures are located, or any adjoining house, unless such soil or vent pipe carried up at least 3' above such opening; but in no case shall pipes be extended more than 5' above the roof of a lean-to or addition to accomplish this purpose. When a water closet is installed in a lean-to or addition, and it is impossible to keep the termination of soil and vent pipes 15' away or 3' above openings, the main soil or waste pipe must be carried up the body of the main building and 10" above the roof and 3' above all openings; and branch soil or waste pipe shall be carried from main line to receive the discharge from fixtures; provided, however, if there be fixtures in the main building from which the main vertical soil pipe extends full size through the roof. The fixtures located in lean-to or addition, provided said fixtures connect the main line or soil pipe, need not have their main line extended full size above the roof, but all traps must be back vented, and all such vent pipes carried up clear of all openings according to the terms of this ordinance. All branch soil or waste pipe extensions 15' or more vertically from the main line or any branch line, to receive the discharge of fixtures, must extend full size through the roof. All sewer, soil and waste pipes must be run as direct as possible; changes in direction of soil and waste pipe shall be made by "Y" branches or ¼ bends. No ¼ bends shall be used except by consent of the Inspector.

**SECTION 25.** All cast iron soil or waste pipe must be of the grade known as "extra heavy," dipped in coal tar pitch while hot, so as to form a good, hard, uniform coating. All fittings used in connection with the same must correspond to pipe in quality and coating. All screw joint soil or waste pipe must be either wrought iron or mild steel of the grade known as "standard." All fittings used in connection with wrought iron and steel soil and waste pipe must be the regular recessed drainage fittings. All wrought iron and steel soil and waste pipe and all fittings and nipples used in connection with the same must be thoroughly galvanized inside and out. The ends of all wrought iron and steel pipe and all nipples must be reamed to remove any burr that may be caused by cutting, so as to leave a smooth, full sized interior opening before screwing home. All threads on wrought iron or steel pipes and nipples must be cut so as to screw entirely to the shoulder of the fitting. The extra heavy cast iron pipe and wrought iron or steel pipe in the main line must be extended full weight and quality to a point 1' above the water line of the highest fixtures. The threads for recessed fittings must be tapped so as to give a uniform fall to branches of ¼" per lineal foot from fixtures toward main soil or waste pipe. All nipples, the unthreaded part of which is less than 1½" long, shall be extra heavy pipe. All hubs, pipes and fittings must be sound and free from defects such as cracks, flaws and sand holes, or any defects that might

weaken them, and it shall be unlawful for any person to install any such defective material that does not conform to this ordinance and to all parts of it, or to conceal or attempt to conceal any such defects by means of cement, paint, putty or tar, or any other substance whatever, or to refuse or fail to remove defective material upon the order of the Inspector.

All soil, waste and vent pipes shall be substantially braced, supported and fastened. Horizontal runs of iron soil, waste and vent pipe, when in filled or made ground, shall be supported by thoroughly tamping the bottom of the ditch, or by piers of either brick or concrete at every 6' of their length; and the foot of each vertical stack of iron soil, waste and vent, when rising from the ground, shall be supported on brick or concrete piers. Horizontal runs of iron soil, waste and vent pipes above ground shall be supported on brick or concrete piers, hung to joists or fastened to walls, with substantial iron straps or hangers at every 6' of their length; and at the foot of vertical lines rising from such horizontal runs.

All vertical stacks of iron soil, waste and vent pipes shall be supported at each floor and ceiling joist. Vertical lines of iron soil, waste and vent pipes in buildings three stories or more in height, shall have substantial iron supports at each floor and ceiling joist. Horizontal runs of lead soil, waste and vent pipe shall be supported their entire length on wooden strips or boards. Vertical lines of lead soil, waste and vent pipes shall have lead tacks, or substantial lead strips soldered to such pipe at every 2' of their entire length and fastened to wooden supports with nails or screws.

(See Table A for required weight of cast iron soil and waste pipe.)

(See Table B for required weight of wrought iron or steel soil and waste pipe. Deviations therefrom shall not exceed 5 per cent.)

All lead waste pipe of 2" and less in internal diameter must be of the grade known as "D" pipe and of the weight per lineal foot shown in Table C. (Page 213).

All joints in cast iron pipes shall be caulked joints made with oakum, well tamped, and pure lead well caulked, and no paint, varnish, putty or cement of any kind shall be put on caulked joints until tested and inspected as per Section 6 hereof. Connections between lead pipes and cast iron must be made by means of brass ferrules of the size and weights shown in Table D. (Page 213).

Connections between lead pipe and wrought iron or mild steel pipe shall be made by heavy, brass soldering nipples, as nearly as possible the full size of the lead pipe, but in no case shall such nipples reduce the size of such pipe exceeding ¼".

All joints in lead pipe shall be wiped joints. All joints between lead pipe and brass ferrules, soldering nipples, and soldering unions, shall be wiped joints. All wiped joints must be made in a workmanlike manner. Trap screws in lead traps shall be inserted by means of wiped joints. No union or wiped flange joints shall be allowed in connections or waste or vent pipes that are to be concealed.

All bends and off-sets in lead pipe must be made so as to leave full sized openings, and care must be taken not to materially

weaken any portion of the pipe in bending. All lead bends and traps must be of the same size and weight as the lead pipe to which they connect.

**SECTION 26.** Direct or converging soil pipes shall be increased in size as follows: When carrying not more than 20 water closets, or their equivalent, 4" in diameter, and shall be increased 1" in diameter for each additional 75 water closets, or fraction thereof; provided, however, that 3" vertical soil stacks of cast iron, galvanized steel or wrought iron pipe may be used in dwelling houses of two stories or less wherein are situated not more than one water closet, one bath, one lavatory, one sink and one set of laundry trays; provided, however, that such 3" stack is not more than 35' in height. Horizontal runs to which such 3" vertical stack connects, must be 4" in diameter. For the purpose of this ordinance in estimating the size of soil and waste pipe, the equivalent of water closets will be estimated in accordance with Table E. (Page 213).

Waste pipes receiving the discharge from fixtures shall be of the size shown in Table F.

#### TRAP VENTING.

**SECTION 27.** Every trap shall be effectually vented. Two inch or less sized "P" or half "S" shall be vented not more than 18" from water line of seal, provided point of connection of vent and waste pipe be not below said water line.

"S" traps, and  $\frac{3}{4}$ " "S" traps shall be vented not more than 4" from line of water seal; vents from pot traps shall be made of the same size as the waste pipe leading from the same.

**SECTION 28.** When "P" traps are used on sinks, wash basins, wash tubs and other fixtures having 2" or less sized traps, also pot or drum traps having horizontal waste pipe, they may be vented by the loop or continuous vent system, provided each trap be connected to a vertical line the same size as the trap, said line acting as waste pipe below point of connection and vent pipe from point of connection upward; and in case of a pot trap the vertical line shall be the same size as waste pipe from pot trap, said vertical line must be carried up 1' above water line of fixture before connecting with other vents or with main loop line. Two "P" traps or two pot traps of either size may be connected to a single vertical line, said line acting as waste pipe below point of connection and vent pipe from point of connection upward, providing said two traps connect to vertical line at same level, and provided the vertical line be one size larger pipe than traps connected thereto, and in case of pot traps the vertical line shall be one size larger than waste pipe leading from same, and providing further, that point of connection of trap and vertical line be not below water line of the traps and not more than 18" from said water line. Two  $1\frac{1}{2}$ " traps may be connected into one 2" vertical line. Two  $1\frac{1}{4}$ " traps may be connected into one  $1\frac{1}{2}$ " vertical line. Two 2" traps may connect to one  $2\frac{1}{2}$ " vertical line.

This system may be carried out indefinitely for groups of fixtures placed one above the other, by adhering to sizes and increasing the main vent pipe as per Table G; provided, however,

that the diameter of the main vent pipe need not exceed the diameter of the main soil pipe; vent pipes for fixtures having traps 2" and less in diameter, whether single or in groups, shall be increased in proportion according to the number of fixtures in Table G. In estimating the size of vent pipes, whether all are the same kind of fixtures or a number of different kinds, the size of main vents will be estimated according to the size and number of traps they serve, as shown in Table G. (Page 213).

When wrought iron or mild steel soil, waste or vent pipe is used, the number of fixtures may be varied to accommodate half sizes prorata to schedule hereinbefore given.

Bends at the base of all vertical vent pipes exceeding 15' in length shall be made with 45° ells, or be connected to soil or waste pipe through a "Y" fitting.

**SECTION 29.** Water closet traps and traps of slop sinks having vent horn attached to trap shall be vented from same, and if no vent horn be provided, vent shall be taken from soil or waste branch not more than 22' from the opening of floor line. In case of single water closet connected to 4" soil pipe, and there being no other fixtures connected to said 4" soil pipe at point of connection, or at any point above said connection, and provided such connection be not more than 22", measured on center line of pipe, in length from 4" main soil or waste pipe to outlet at floor level, the usual back vent may be omitted. In case of a set of bath room fixtures connected to main 4" soil pipe where there are no fixtures connected to main soil pipe at higher point, if all other fixtures be connected to soil pipe by separate opening, the back vent of the closet may be omitted.

**SECTION 30.** In buildings where groups or rows of fixtures such as water closets, slop sinks and stall urinals, provided such urinals are the kind having traps below the floor, what is known as the "loop" or continuous venting may be employed, provided such fixtures be connected to top side of horizontal line and provided said connection be not more than 22" measured on center line of pipe, in length from floor line to horizontal lines, said horizontal lines must be continued full size beyond fixture farthest from main vertical line and 1' above highest water line of fixtures before connecting with main vent. This loop vent may be connected with main stack 1' above water line of highest fixture or may be continued up separate through roof, provided, however, that not more than eight fixtures be placed in a group or row, unless a relief vent be attached to horizontal line after each eight fixtures, or, in case there be more than eight and less than 16 fixtures in a row, the number shall be divided equally and the relief vent be attached to horizontal line at division. Said relief vent shall be as large as horizontal run, and must be carried up 1' above the water line of fixture before connecting with other vents.

The main soil or waste pipe from a point 1' above the water line of the highest fixture, and all vent pipes, may be either standard cast iron, galvanized, wrought iron or mild steel, lead or brass.

Lead vent pipe must be of the same weight and quality as that specified in this ordinance for waste pipes; brass vent pipe shall be drawn brass of the same weight and quality as used for waste pipe.



Change in direction of vent pipe may be made at an angle of either 45 degrees or 90 degrees, but all vent pipes must have a fall of at least  $\frac{1}{4}$ " per foot toward the trap they serve.

**SECTION 31.** Vents for water closet traps shall be not less than 2" in diameter. Vents for slop sinks and other fixtures having traps 2" and larger shall not be less than 2" in diameter.

A 2" pipe not to exceed 35' in length may be used to ventilate the trap of a single water closet or slop sink, and must be increased  $\frac{1}{2}$ " in diameter for every succeeding 35' or fraction thereof, until it becomes the same size as the main soil pipe, and in all cases the vent pipe from trap must be carried up 1' above the water line of fixtures before combining with the vents of other fixtures.

Main vent pipes must conform to the sizes, length and number of fixtures as shown in Table H.

**SECTION 32.** Every fixture, sanitary drinking fountain excepted, shall be separately and effectively trapped. One trap shall be required for every four sanitary drinking fountains, or fraction thereof, if placed not more than 30" apart. The trap shall be set as near as practicable to the fixture it serves. In all cases where a building is used as a hotel, boarding house or restaurant, the owner or occupant shall install a properly constructed grease trap through which all slops of a greasy nature shall pass. Grease traps for hotel or restaurant sinks shall be at least one-fifth as large as the sinks they serve, and shall be constructed of cast metal provided with cooling jacket. All bath tubs shall have a pot trap with 4" body and 4" screw above the floor, for clean-out purposes; said screw to be attached to body of trap by wiped joint.

#### DRAINAGE.

**SECTION 33.** All yards, cellars, areas and basements must be properly drained. The cellars or basements of all buildings other than residences, which are lower than the street or alley upon which the building abuts, must be drained by a connection equal in size to the main sewer connection, provided such main sewer connection be not more than 12" in diameter. The cellar or basement drains of residences must be not less than 2" in diameter. When cellar, basement or area drains are connected to sewer, they must be properly trapped, and traps ventilated according to size. The following size vents shall be applied to cellar or basement drain traps: 2 in., 3 in. and 4 in. traps, 2 in. vent; 6 in. and 7 in. traps, 3 in. vent; 8 in. and 9 in. traps, 3½ in. vent. All traps of larger size, 4 in. vent.

All cellars and basement drains must, when connected to sewer, cesspool or septic tank, be protected from back water by back water valves; said backwater valve must be provided with water and air tight clean-out cover placed immediately above valve, either screwed or bolted in place, capable of being removed for examination or repairs.

All cellar, basement or area drain traps, where the natural flow of water is not continuous, must be supplied with water drip to assure a continuous seal in dry weather.

The drain leading from cellars or basements of all buildings other than residences, must be protected by means of a raised strainer not less than 1'0" in height; said strainer must be bolted or screwed to outlet in such a manner as to be removed for cleaning purposes, and must be sufficiently perforated to admit a full flow of water into sewer.

#### CLEAN-OUTS.

**SECTION 34.** There shall be clean-outs put in the vertical soil pipe at the basement floor level, or at the ground level where there is no basement, and at the end of horizontal runs; clean-outs must be inserted in cast iron pipe with calked joint fittings with brass screw cover, or clean-out fitting with cover bolted in place. When clean-outs are put in vertical soil or waste pipe, they shall be put in so as to have their lower side 3" or more above the floor or ground level. Clean-outs, when inserted in wrought iron or mild steel pipe, shall be inserted with screw joint and covered with brass screw cover.

Clean-outs located below basement floors must have manholes of brick, or concrete, with iron cover, and so constructed as to give free and easy access to the clean-out. The internal diameter of clean-out fittings, or trap screws for pot traps, shall not be less than  $\frac{1}{2}$ " smaller in internal diameter than the pipe they serve. All lead traps shall be provided with brass trap screws for clean-out purposes. Tapping holes in soil or waste pipe will not be permitted. When it becomes necessary to disconnect pipes for removal of stoppage, clean-outs must be inserted as hereinabove stated.

#### RAINWATER LEADERS OR DOWNSPOUTS.

**SECTION 35.** Rainwater leaders shall never be used as soil, waste or vent pipes, nor shall soil, waste or vent pipes be used as rainwater leaders. When rainwater leaders are connected to the house drain they shall be connected on the sewer side of all waste and vent connection, except when connected to main horizontal soil pipe in basement. When a rain water leader is within the building or in any air or light shaft within the outside walls of a building it shall be of cast iron or galvanized wrought iron or mild steel pipe. Such rainwater leaders, provided they do not terminate within 15' of, or below, any window or opening, need not be trapped.

Outside sheet metal rainwater leaders, when connected to soil pipes within the building, shall be trapped, the trap to be vented the same as other fixtures, and in every case, where rainwater leaders open within 15' of any window, door or light shaft, they shall be trapped. Outside sheet metal rainwater leaders when connected to sewers must be trapped. Horizontal cast iron rainwater leaders within a building must be extra heavy cast iron to a point 3' above the ground. All buildings now or hereafter erected shall be kept provided with proper leaders for conducting water from the roof to the ground, and when required by the Commissioner of Health, shall be connected with the sewer or street gutter. Connections between iron leaders and roof must be made with brass ferrules, or soldering nipples, wiped to lead pipe.

**WATER SERVICE.**

**SECTION 36.** Water service pipes must be so located that the supply for each separate house or premises shall be controlled by a separate stop and waste cock, with extension handle, properly protected from frosts, and so placed within the premises that all service pipe and fixtures may be thoroughly drained during freezing weather. All pipes in the building must be so arranged as to drain toward the stop and waste cock. All water pipes shall be either galvanized iron, lead or brass and protected from frost. Air chambers must be placed at the termination of all vertical lines of water pipe exceeding 6' in length, and at all sinks.

Whenever any apparatus for heating water be connected direct to city mains, it shall be unlawful for any person to install in the service pipe between such heating apparatus and the city main, any check valve or any device which will check the back pressure from heating apparatus toward the city main, unless a relief valve be placed on such heating apparatus to the satisfaction of and subject to the approval of the Inspector; and it shall be unlawful for the owner, agent or occupant of any premises owned or controlled by him to maintain or allow to be maintained in any building on such premises, any such water heating apparatus unless all the conditions herein stated be complied with. It shall be the duty of the Superintendent of Water, or his duly appointed agent, to notify the Department of Health and Sanitation in writing, whenever they shall install any such check valve, or device, or any service pipe for the protection of the city meters.

**REFRIGERATOR WASTE.**

**SECTION 37.** In no case shall the waste pipe from a refrigerator, or other receptacle where food is kept, be connected direct to the sewer, soil or waste pipe, but must empty into an open tray or sink; said tray or sink must be properly trapped and vented as other fixtures.

**OPEN PLUMBING.**

**SECTION 38.** Water closet bowls, bath tubs, wash bowls, sinks or slop sinks must be closed in wooden casings. Wooden sinks, wash trays or bath tubs will not be permitted in any building, and all such are hereby declared a nuisance; provided, however, that wooden sinks or vats may be used by engravers and photographers in their work, where strong acids are used, by special permit from the Inspector.

**URINALS FOR PUBLIC USE.**

**SECTION 39.** When urinals are placed in any public building the floors must be covered with either marble, slate, or extra heavy glass or glazed tiling, or may be constructed of a body of good concrete floated with not less than 1½" coat of 1-to-1 cement facing, to the satisfaction of the Inspector.

When urinals are constructed to drain from trough to floor, the waste pipe shall be at least 2", with 2" trap. Urinals must be

supplied with water so as to thoroughly flush all parts, and no galvanized iron or other sheet metal urinal troughs will be allowed.

**GAS PIPING**

**SECTION 40.** In all systems of gas piping hereafter constructed, or reconstructed, the size of pipes shall be not less, and the length of pipes shall be no greater in respect to the number of burners than specified in Table 1.

Except in the case of fuel lines run for gas ranges in which the consumption of gas for each range must be computed as an equivalent to eight openings or burners.

No ¼" pipe shall be used unless exposed for a short run only, and not more than one burner. No gas service pipe shall be less than 1" in diameter.

**SECTION 41.** All gas pipes must be of the best quality of wrought iron; all fittings must be of the best quality of malleable or cast iron, or mild steel; all pipes must be suitably supported and stayed with pipe hooks, straps or screws. All pipes must have a straight drainage toward the opening. Split pipes and fittings are prohibited and must be removed. Pipes must be free from traps and no automatic drips will be allowed. No cement shall be used in any pipes or fittings for the purpose of repairing or concealing defects. Pipes shall not be painted or covered before inspection is made. All drops or openings for wall brackets must be made with bends or long drop ells, and shall be well fastened with pipe hooks or straps. No brackets made with elbows, or tees and nipples will be allowed. When drops or openings are not in close proximity to the studding or joist, a notched wooden cross piece must be securely fastened to secure the same. The rise pipe or main outlet from the meter must not be less than ¾" to the first tier of joints. In all cases the lower end of gas riser shall be left so as to be readily accessible. No union fittings shall be used on concealed piping.

**SECTION 42.** No extension or alteration of any existing system of gas piping in any building shall be made without the inspection and approval of the Inspector. Gas companies shall run all pipes between their mains and the meters, except in buildings where the meters are to be located in meter rooms above the first floor, in which case the company shall run the pipes to the perpendicular rise in basement only.

**SECTION 43.** Upon the completion of any system of gas piping, and before the floors are laid, or the pipes and fittings are concealed, the gas fitter or other persons doing the work shall file in the office of the Inspector an application for inspection of such system of gas piping, and thereupon the Inspector shall, within three working days, cause the same to be inspected and tested with a pressure of not less than 6" upon a mercury gauge. The gauge and air pump for testing to be furnished by the gas fitter or other persons doing the work. If the testing and inspection be satisfactory to the Inspector, a certificate of approval shall be issued by him. No meters shall be attached to any system of gas pipes previous to the issuing of such certificate.

**SECTION 44.** All branch or outlet pipes shall be taken from the side or tops of running lines; never directly from below.

**SECTION 45.** All gas cocks on the house side of meter shall be provided with suitable check or stop on key plainly indicating whether closed or open.

#### STEAM AND HOT WATER HEATING.

**SECTION 46.** No steam exhaust or blow-off, or any heated water shall be discharged into a sewer until the temperature thereof shall have been reduced to at least 100 degrees Fahrenheit.

**SECTION 47.** No safety valve, stop valve, or other obstruction shall be placed in the expansion or on the expansion tank of any hot water apparatus, and no device shall be used to increase the pressure of any hot water heating apparatus other than the static head of water contained therein, unless such device meets with the approval of the Inspector.

**SECTION 48.** No pipes, or other heated metal in connection with any steam apparatus shall be placed in contact with any combustible material, either at rest or when its position is changed by expansion or contraction, and where steam heated metal shall be placed within 1" of combustible material the heated metal shall be insulated.

**SECTION 49.** A fitting shall be provided in sewer for taking water from condensation.

#### PENAL CLAUSE.

**SECTION 50.** Any person violating or failing to comply with any of the provisions of this ordinance, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in any sum not exceeding \$100, or imprisoned in the city jail for a term not exceeding 30 days, or may be both fined and imprisoned.

**SECTION 51.** That all ordinances or parts of ordinances in conflict with the provisions of this ordinance be, and the same are hereby repealed. (Section 1098 of Ordinance 31578 is of later date and qualifies this section.)

## APPENDIX

### WEIGHT OF VARIOUS MATERIALS AND STRUCTURAL PARTS

#### *As Used by the Seattle Building Department in Computing Loads*

Brick, Pressed .....	150	lbs. per cu. ft.
Brick, Pressed, laid, thin joints .....	140	" " " "
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 .....	150	" " " "
Cyclopean .....	155	" " " "
Slag (blast furnace) .....	130	" " " "
Slag (garbage incinerator) .....	95 to 105	" " " "
Cast iron .....	450	" " " "
Earth—		
Common loam, dry and loose .....	76	" " " "
Clay and gravel, dry and loose .....	100	" " " "
Common earth, dry and 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	" " " "
Partitions—		
2"x4" studs, wood lath, 5/8" plaster, both sides .....	16	lbs. per sq. ft.
2"x4" studs, plaster board, 5/8" plaster both sides .....	16	" " " "
Channel studs, metal lath, cement plaster, solid 2" thick .....	20	" " " "

## Weights of Various Materials, Etc.—Continued

## Partitions—Continued.

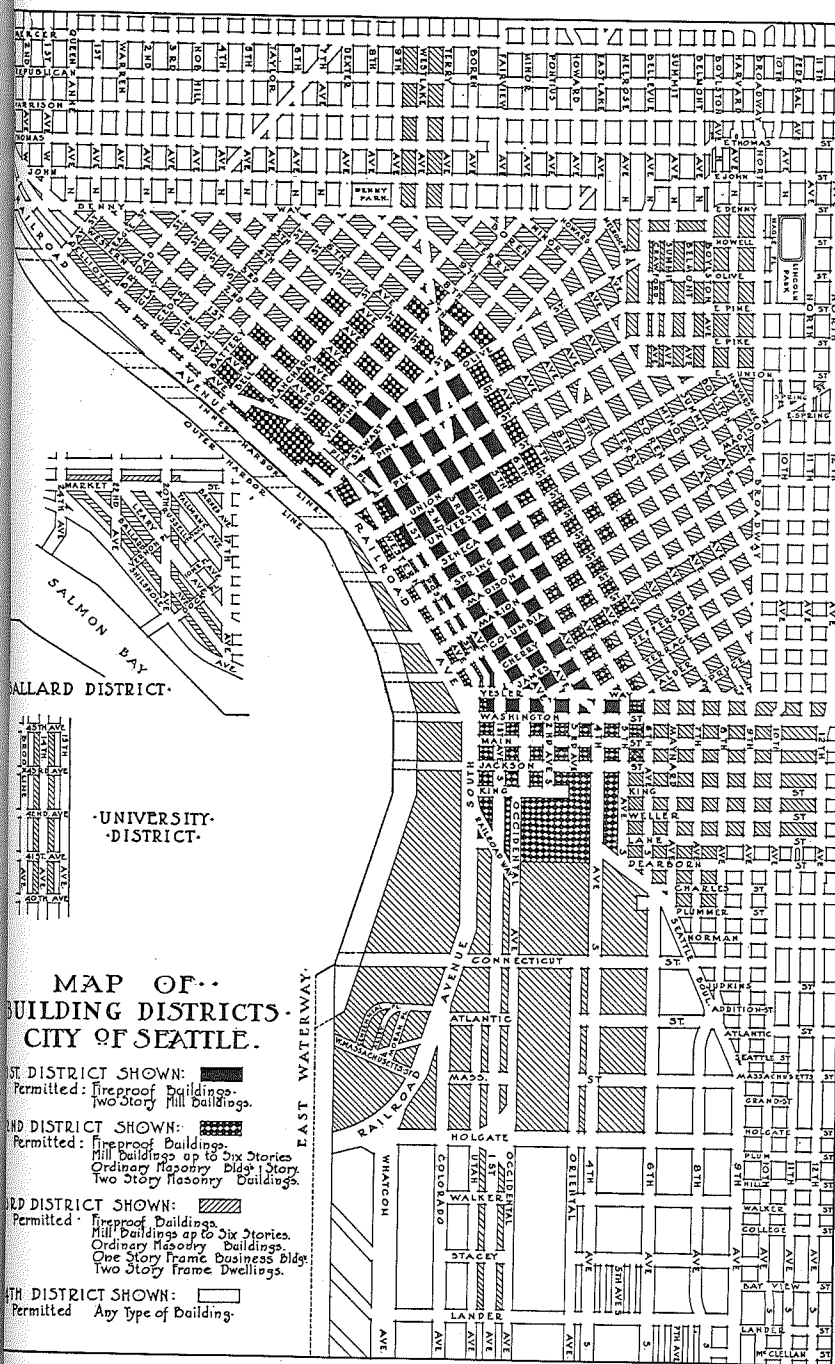
Plaster on plaster block (one side)	5	lbs. per sq. ft.
2" Terra Cotta Tile	13	" " " "
3" " " "	16	" " " "
4" " " "	18	" " " "
5" " " "	20	" " " "
6" " " "	25	" " " "
8" " " "	30	" " " "
12" " " "	45	" " " "
Plaster on T. C. partitions (one side)	5	" " " "
2" Plaster Blocks	7	" " " "
2 1/2" " "	8.5	" " " "
3" " "	9.5	" " " "
3 1/2" " "	10.5	" " " "
4" " "	12	" " " "
5" " "	15	" " " "
6" " "	18	" " " "
8" " "	22	" " " "

## Ceilings—

Wood lath and plaster	8	" " " "
Metal lath and plaster suspended	10	" " " "

## Roofings—

Wood shingles	3	" " " "
Slate 3/16"	7	" " " "
Slate 1/4"	10	" " " "
Tile and clay shingles	11 to 14	" " " "
Roman tile, clay	12	" " " "
Spanish tile, clay	19	" " " "
Ludowici tile, Spanish	10	" " " "
Tile roof laid in mortar, add	10	" " " "
Copper (if no weight is specified)	1 1/2	" " " "
Tin	1	" " " "
Corrugated iron	2	" " " "
Tar and gravel	6	" " " "
Prepared composition	1	" " " "
Sand, dry	100	" " cu. "
Sand, wet	120	" " " "
Skylights, metal covered, wire glass	5	" " sq. "
Steel	490	" " cu. "
Terra Cotta, large blocks	70	" " " "
Terra Cotta, filled with brickwork	120	" " " "
Terra Cotta, Dennison interlocking tile, laid	6	" " " "
Timber—		
Fir, dry	32	" " " "
Fir, wet	44	" " " "
Oak	46	" " " "
Water, fresh at 60 deg. Fahr	62 1/2	" " " "
Water, sea	64	" " " "



### ***The Owner's Liability to the State for Insurance***

Section 17 of the Workmen's Compensation Act, which relates to public and contract work, reads in part as follows:

"In private work the contractor shall be responsible primarily and directly, to the accident fund for the proper percentage of the total payroll of the work and the owner of the property affected by the contract shall be surety for such payments."

In private work the contractor is required to pay direct to the Commission, the required percentage of his payroll. The owner being surety for the payments. Full rates are charged for the year or until such a time as the adjustment for the year can be determined. If the contractor has overpaid, the excess payments will apply on his subsequent payments or if he permanently discontinues business in the State of Washington, cash refund will be made. The average rate assessed for the first two years' operation of the law was 65 per cent. of the basic rates specified in the Act.

Contractors are required to keep an accurate account of the amount paid out by them in wages, and all such records are to be always open to inspection of Commission's Auditors (see Sec. 16, Workmen's Compensation Act—Penalty for misrepresentation as to payroll). Amount paid for team hire should not be included in the extra hazardous payroll.

If demand for premium due the fund is not paid within a reasonable length of time the contractor becomes in default to the accident fund—such period of default will be from the date premium is due until paid. Should an accident occur to a workman during period of default he may elect to either accept compensation from the Commission or bring suit against his employer. Should he elect to bring suit the contractor is called upon to defend himself in court with all the old defenses such as "assumption of risk," "contributory negligence" and "fellow servant rule" abolished. The perilous position in which he is placed is readily discernible. The law is compulsory and it is for the mutual benefit of all contributors to see that his competitor is paying into the fund so that all contractors are on the same basis when bidding on a contract as well as reducing the rate to contributors.

### ***Protection of Lien Right***

Persons, firms, and corporations furnishing material for use in the alteration, repair, or construction of buildings in the State of Washington, have a lien on such buildings for a period ending ninety days after having furnished the material, PROVIDED they have complied with that provision of the statute law respecting the service of warning notice on the owner.

It is required by law that a lien claimant, if the lien be for material shall have, within five days of the first delivery of said material, mailed or delivered to the owner of the property, a notice in writing, to the effect that said claimant has commenced to deliver such material, giving the name of the contractor or agent ordering the same, and warning the owner that a lien may be claimed.

It is recommended that materialmen make an invariable practice of serving warning notice to owners, and the following form is submitted as suitable for that purpose:

\_\_\_\_\_, 191\_\_\_\_\_

To \_\_\_\_\_

\_\_\_\_\_  
(Address; must give Street and Number.)

Pursuant to the provisions of the lien law of the State of Washington, and on that account only, (I or we) hereby notify you that upon orders from \_\_\_\_\_(I or we) commenced \_\_\_\_\_191\_\_\_\_\_to deliver materials and supplies to be used in the (construction, alteration or repair) of premises located as follows (insert here correct legal description of premises), of which said premises you are the owner or reputed owner. The purpose of this notice is to warn you that (I or we) will be entitled to and may claim a lien on the above described premises upon failure or neglect of said \_\_\_\_\_

\_\_\_\_\_ to pay the same.  
Please govern yourself accordingly.

\_\_\_\_\_  
(I or we) invariably serve the above notice regardless of the responsibility of the parties involved, and this notice does not, therefore, necessarily imply lack of confidence.



### Substitute for Receipted Bills

It is frequently required, as a precedent to final settlement with a contractor, that the contractor shall submit to the owner or his architect, receipted bills for all material and labor involved in the execution of a contract. This is sometimes embarrassing to the contractor, who may for good and sufficient reasons desire to keep the details of his business to himself; yet, it is not unreasonable on the part of the owner to demand evidence that the bills have been paid, this particularly in view of the fact that the right of lien in the State of Washington is not limited to the amount of the contract, as would be more equitable, and as is the case in some States.

The following is submitted as a means of obviating the necessity of exhibiting receipted bills, while at the same time fully protecting the owner by making the contractor criminally liable in case of misrepresentation:

### AFFIDAVIT.

State of Washington, }  
County of \_\_\_\_\_ } ss.

\_\_\_\_\_, being first duly sworn, on

oath, says: that he is the identical \_\_\_\_\_ under whose contract was (constructed, altered or repaired), (give location) for (give name of owner), under the direction and supervision of (give name of architect); that all of the bills of every kind in connection with the said contract have been paid in full; that this affiant has been paid in full; that the contract has been in every manner completed, and nothing of any kind remains to be done in regard thereto.

This affidavit is made for the benefit of the owner, the sureties on the bond of this affiant, and all others concerned.

Subscribed and sworn to before me this \_\_\_\_\_

day of \_\_\_\_\_ 191\_\_\_\_\_

Notary Public in and for the State of Washington,  
residing at \_\_\_\_\_

## PLUMBING ORDINANCE TABLES

A		B		C		D	
WEIGHT OF CAST IRON SOIL & WASTE PIPE		WEIGHT OF WROUGHT IRON & MILD STEEL SOIL & WASTE PIPE		WEIGHT OF LEAD SOIL & WASTE PIPE		WEIGHT OF BRASS PIPE	
Inside Diameter	Weight per Lineal Foot	Inside Diameter	Weight per Lineal Foot	Inside Diameter	Weight per Lineal Foot	Size	Weight
2 inches	5 1/2 Pounds	1 1/4 inches	2.24 Pounds	1 1/4 inches	2 1/2 Pounds	4 inches	24 Ounces
3 inches	8 1/2 Pounds	1 1/2 inches	2.68 Pounds	1 1/2 inches	3 1/2 Pounds	3 inches	16 Ounces
4 inches	12 Pounds	2 inches	3.61 Pounds	2 inches	4 Pounds	2 inches	9 Ounces
5 inches	17 Pounds	2 1/2 inches	5.74 Pounds	2 1/2 inches	4 1/2 Pounds	1 1/2 inches	10 Ounces
6 inches	20 Pounds	3 inches	7.54 Pounds	3 inches	6 Pounds		
7 inches	27 Pounds	3 1/2 inches	9.00 Pounds				
8 inches	33 1/2 Pounds	4 inches	10.66 Pounds				
10 inches	45 Pounds	4 1/2 inches	12.49 Pounds				
12 inches	54 Pounds	5 inches	14.50 Pounds				
		6 inches	18.76 Pounds				

THE FOLLOWING NUMBER OF FIXTURES WILL BE DEEMED IN EACH INSTANCE THE EQUIVALENT OF ONE WATER CLOSET.

No	Name	No	Name
8	Wash Basins	4	Laundry Trays
8	Pantry Sinks	4	Urinals
8	Drinking Fountains	3	Slop Sinks
4	Sinks	1	Slop Sink with 2" or larger waste
4	Bath Tubs		

WASTE PIPES RECEIVING THE DISCHARGE FROM FIXTURES SHALL BE THE FOLLOWING SIZES

No	Name	Size	No	Name	Size
1 to 2	Wash Basins, Pantry Sink & Drinking Fountains	1 1/2 in.	2 or More	Bath Tubs	4 in.
3 to 6	Wash Basins, Pantry Sink & Drinking Fountains	1 1/2 in.	1 to 3	Wash Tubs not less than	1 1/2 in.
7 to 15	Wash Basins, Pantry Sink & Drinking Fountains	2 in.	4 to 10	Wash Tubs not less than	2 in.
16 to 40	Wash Basins, Pantry Sink & Drinking Fountains	3 in.	11 or More	Wash Tubs not less than	3 in.
41 to 80	Wash Basins, Pantry Sink & Drinking Fountains	4 in.	1	Urinal - not less than	1 1/2 in.
1 to 2	Sinks	1 1/2 in.	2 to 4	Urinals - not less than	2 in.
3 to 10	Sinks	2 in.	5 to 11	Urinals - not less than	3 in.
11 to 20	Sinks	3 in.	12 or More	Urinals - not less than	4 in.
1 to 2	Bath Tubs	4 in.	1	Slop Sink 1 1/2" Waste Op. not less	1 1/2 in.
3 to 10	Bath Tubs	4 in.	2 to 4	Slop Sink 2" Waste Op. not less	2 in.
11 to 20	Bath Tubs	5 in.	5 to 10	Slop Sink 3" Waste Op. not less	3 in.
			11 or More	Slop Sink 4" Waste Op. not less	4 in.

SIZE OF VENT PIPES FOR THE FOLLOWING KIND AND NUMBER OF FIXTURES (SEE SECTION 26)

No	Name	Size	No	Name	Size
1 to 2	Basins, Pantry Sinks or Drinking Fountains	1 1/2 in.	3 to 10	Bath Tubs	2 in.
3 to 6	Basins, Pantry Sinks or Drinking Fountains	1 1/2 in.	11 to 20	Bath Tubs	2 in.
7 to 15	Basins, Pantry Sinks or Drinking Fountains	2 in.	21 or More	Bath Tubs	4 in.
16 to 40	Basins, Pantry Sinks or Drinking Fountains	3 in.	1 to 3	Wash Tubs	1 1/2 in.
41 to 80	Basins, Pantry Sinks or Drinking Fountains	4 in.	4 to 10	Wash Tubs	2 in.
1 to 2	Sinks	1 1/2 in.	11 or More	Wash Tubs	3 in.
3 to 10	Sinks	2 in.	1	Urinal	1 1/2 in.
11 to 20	Sinks	3 in.	2 to 4	Urinals	2 in.
21 or More	Sinks	4 in.	5 to 11	Urinals	3 in.
1 to 2	Bath Tubs	1 1/2 in.	12 or More	Urinals	4 in.

MAIN VENTS MUST CONFORM TO THE FOLLOWING SIZES, LENGTHS AND NUMBER OF FIXTURES OR THEIR EQUIVALENT

Size of Vent	Greatest Length to Point of Increase in Size	No. of W.C. or Equivalent	Size of Vent	Greatest Length to Point of Increase in Size	No. of W.C. or Equivalent
2 inches	20 Feet Long	3 W.C.	4 1/2 inches	35 Feet Long	55 W.C.
2 1/2 inches	35 Feet Long	5 W.C.	5 inches	35 Feet Long	70 W.C.
3 inches	35 Feet Long	17 W.C.	5 1/2 inches	35 Feet Long	90 W.C.
3 1/2 inches	35 Feet Long	25 W.C.	6 inches	35 Feet Long	120 W.C.
4 inches	35 Feet Long	40 W.C.			

SIZE AND LENGTH OF GAS PIPE IN RESPECT TO THE NUMBER OF BURNERS

Size	Openings	Length	Size	Openings	Length	Size	Openings	Length
3/8 inch	3 or less	15' or less	1 1/2 inch	40 or less	250' or less	3 inch	120 or less	1200' or less
	4 or less	50' or less		60 or less	300' or less		200 or less	1000' or less
1/2 inch	5 or less	40' or less		80 or less	225' or less		300 or less	1000' or less
	6 or less	30' or less		100 or less	150' or less		400 or less	600' or less
	8 or less	30' or less		120 or less	100' or less		500 or less	300' or less
	10 or less	80' or less		175 or less	500' or less		600 or less	200' or less
3/4 inch	12 or less	70' or less		100 or less	400' or less		200 or less	1600' or less
	14 or less	60' or less		125 or less	350' or less		300 or less	1400' or less
	16 or less	50' or less		150 or less	300' or less		400 or less	1200' or less
	18 or less	140' or less	2 inch	175 or less	250' or less		500 or less	1000' or less
	20 or less	120' or less		200 or less	200' or less		600 or less	800' or less
	25 or less	110' or less		225 or less	150' or less		700 or less	600' or less
	30 or less	90' or less		250 or less	100' or less		800 or less	500' or less
	35 or less	70' or less		300 or less	50' or less		900 or less	400' or less
	40 or less	500' or less		100 or less	500' or less		1000 or less	300' or less
1 1/4 inch	50 or less	200' or less	2 1/2 inch	200 or less	300' or less			
	60 or less	150' or less		300 or less	200' or less			
	70 or less	100' or less		400 or less	100' or less			

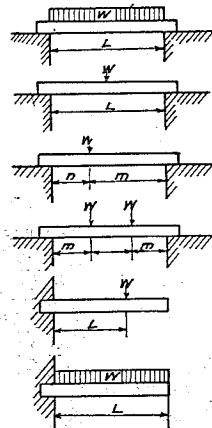
# STRENGTH OF DOUGLAS FIR BEAMS ACCORDING TO THE BUILDING CODE SEATTLE WASH

Safe loads uniformly distributed  
for beams one inch wide

Depth of Beam	Span in feet											
	6	8	10	12	14	16	18	20	22	24	26	28
4	420	310	250									
6	980	730	590	490	420							
8	1600	1330	1070	890	760	670						
10		2000	1690	1410	1210	1060	940	850				
12			2400	2050	1750	1530	1360	1230	1120			
14				2800	2400	2100	1870	1680	1530	1400		
16				3200	3150	2760	2450	2160	2000	1840		
18					3600	3500	3110	2800	2550	2330	2150	2000
20						4000	3850	3470	3150	2890	2670	2480
22							4400	4210	3820	3500	3230	3000
24								4800	4560	4180	3860	3580

Loads above zigzag line are liable to crack plastered ceilings, as the deflections exceed  $\frac{1}{360}$  of span.

Loads immediately above dotted lines indicate the limit for resistance to horizontal shear.



Let  $W$  = Safe load in pounds.  
 $L$  = Length of span in inches.

$$W = \frac{6400 bd^2}{3L}$$

$$W = \frac{3200 bd^2}{3L}$$

$$W = \frac{800 L bd^2}{3mn}$$

$$W = \frac{800 bd^2}{3m}$$

$$W = \frac{800 bd^2}{3L}$$

$$W = \frac{1600 bd^2}{3L}$$

\* Commercial timber (Depth - #) Aug 12 1917 Computed by H. Billman Eng.

# INDEX TO BUILDING CODE

Edition 1917-18.

	Section	Page
ABATTOIRS	902-K	149
ACCEPTED ENGINEERING PRACTICE	495	85
ACCESS TO WATER AND GAS IN CASE OF FIRE	515	90
ACID WORKS	905-v	150
ADDITIONS TO BUILDING—Permit required	116	22
ADDITION TO OLD WALLS—Increasing thickness	334	55
ADDITION TO SCHOOLS	385	147
ADHESION BOND	445	75
ADJOINING PROPERTY—Protection of, while excavating	329	54
ADJOINING BUILDINGS—Protection of roofs	1021	170
ADMINISTRATION	PART I	19
AGGREGATE OTHER THAN STONE	318	51
ALCOVES TO HABITABLE ROOMS	724	122
ALLEYS—Definition of	132	25
ALLEYS—Fireproof openings required in	223	31
ALTERATIONS AND REPAIRS—Existing deficiencies as to egress, etc., may bar permit	1027	173
In general	1025 to 1034	174
In apartments and tenements	704	119
In fireproof buildings	1028	173
Permit required	116	22
Rendered necessary by regrades or street widening	1026	171
To buildings exceeding lawful height	1027	173
AMERICAN SOCIETY FOR TESTING MATERIALS	MADE—AUTHORITY ON—Testing cement	406
Testing fireproof floors	217	67
Testing fireproof partitions	224	29
AMUSEMENT HALLS	402	31
ANCHORAGE OF ashlar	822 to 831	66
Of joists	347	129
Of reinforcement	377	58
Of walls to framing	451	64
ANNUAL INSPECTION OF ROOF SIGNS	377	76
ANNUAL REPORT OF BOARD OF APPEAL	1009	64
APARTMENT HOUSE—Live load	131	165
APARTMENTS AND TENEMENTS	304	25
APPEAL—Board of	701 to 735	48
APPENDAGES	126 to 132	117
Construction of, on other than frame buildings	1003	128
Dimensions of, on other frame buildings	1004	24
Projection of, with respect lot line, frame buildings	286	163
APPLICATION FOR PERMIT—Corrections in	120	164
To be filed	117	44
APPRAISAL OF FIRE LOSSES	1040	22
APPROACHES TO EXITS	601	22
ARCHITECTS MAY SIGN FOR OWNER	117	174
ARCHITECTS—Penalty for not employing	469	98
ARCHITECTURAL EMBELLISHMENTS	1004	22
AREA BETWEEN FIRE (DIVISION) WALLS	501, 502, 503	79
AREA—Definition of	132	164
Of Courts	287, 288, 289	86
Of interior balconies	1002	25
Of lots that buildings may cover	287	44
Of rooms	720	163
AREA WAYS—Under Sidewalks	304	44
ARMORIES—Live load	1011	121
ASBESTOS—Board facing of signs when three stories high	851	181
Board shelves in dressing rooms	881	48
Cloth		167

	Section	Page
ABESTOS—(Continued.)		
Curtains in amusement halls	826	130
Curtains in theaters	849	136
Paper—		
Between floors, non-fireproof apartment houses	733	123
Cell corrugated around smoke pipes	543	94
Covering for hot air ducts	546	94
Covering for roof structures, mill buildings	245	35
Coverings for vent pipes from gas ranges	732	123
In plank partitions	626	104
Lining of dry rooms	558	97
Over roof boards, ordinary masonry buildings	261	39
Shingles	261	39
Walls of cold storage buildings	945	154
Tile roofing	261	39
ASHLAR FACING	347, 348, 349	58
ASPHALT PLANTS	902-c	149
ASPHALT JOINTS IN BRICK STABLE FLOORS	920	151
ASSEMBLY HALL—Definition of	801	124
In schools	889	147
Live load, in	804	48
Public	804 to 821	125
Places of, in frame buildings	276	41
ASYLUMS—Live load	304	48
ATTIC SPACES—Division of	509	88
In mill buildings	244	35
AUTOMATIC ELECTRIC ELEVATORS	670	112
AUTOMATIC FIRE DOORS—(See also 'Fire Doors.')		
Boiler rooms, mill buildings	243	35
Frame buildings, when built on the party line	286	44
AUTOMATIC SPRINKLERS—		
If installed division walls may be omitted	503	86
In attics of mill buildings	244	35
In basement used for storage	513	89
In cold storage houses	945	154
In department stores	502	86
In factories over five stories high	514	90
In ice houses	945	154
In mill buildings	247	36
In ordinary masonry buildings	265	40
In restricted buildings	503	86
In theatres	858	139
In warehouses over five stories high	514	90
AWNINGS—Live load on	304	48
See also	178 to 180	
BAGGAGE CRATES	670	112
BALCONIES EXTERIOR—Construction of, on other than frame buildings	1003	163
Dimension of	1004	164
If of uncovered wood, building classed as frame	274	48
BALCONIES, INTERIOR	1002	163
BASEMENTS—Apartments in	731	123
Ceilings of, in frame buildings	278	42
Definition of	285	42
Fireproof openings in	223	31
Partitions in fireproof, when	224	31
Plastering in	263	39
Sprinkler systems in	513	89
Stairs, enclosure of	629	104
Stairs to	608	101
BATHROOMS—Required, when	730	122
BAY WINDOWS—Construction of, on other than frame buildings	1003	163
Dimension of	1004	164
If of uncovered wood, building classed as frame	274	41
BEARING PLATES—In ordinary construction	375	63
In reinforced concrete columns	448	75
BED POCKETS—Ventilation of	293	47
BEARING STUD PARTITIONS—When permitted	257	37
How constructed, frame buildings	271	40
How constructed, ordinary masonry buildings	258	37
BEARING WALL—Definition of	351	58
BILLBOARDS	1012	167

	Section	Page
BLANKET CLAUSES—Frame buildings	231	42
Fireproof buildings	232	32
Mill buildings	249	37
Ordinary masonry buildings	266	40
Strength of concrete construction	470	79
BLACKSMITH SHOPS	905-e, 906	150
BLEACHERS—Live load	304	48
BOARD OF APPEALS	126 to 132	24
BOARD OF PUBLIC WORKS—May permit temporary buildings	1016	168
To pass upon stable locations	929	152
To pass upon laundry locations	945	154
To pass upon location of limited buildings	906	150
To formulate regulations in re cement testing		66
BOARDING HOUSE—Live load	304	48
BOILERS AND FURNACES—Forbidden in theaters	859	140
BOILER ROOMS—Egress from	608	101
Enclosure of	556	97
Enclosure of, stairs from	629	104
In mill buildings	243, 246, 247	36
In ordinary masonry buildings adjacent first district	265	40
In school buildings	885	147
Openings fireproofed, all buildings	556	97
Openings fireproofed, mill buildings	246	36
Sprinklers in	247	36
BOILERS—Setting of	555	97
BOND BETWEEN SLAB AND BEAM—Reinforced concrete	453, 454	76
BONDS REQUIRED ON—Temporary buildings	1016	168
Bill boards	1012	167
Roof signs	1009	165
BOOTHES—Picture machine	871 to 878, 881 882	143-146
BOX COLUMNS	485	84
BORING OF TIMBERS FOR PIPES—Frame buildings	275	41
Ordinary masonry buildings	262	39
BRACKETS—Exterior	1004	164
BREWERIES	905-r, 906	150
BRIDGES—Between buildings	605	99
BRIDGE FIRE ESCAPE	605	99
BRIDGING—In frame buildings	272	41
In ordinary masonry buildings	259, 260	38
BRICK—A fireproof material	214	29
Crushed for concrete	418	68
Footings	331, 332	54
Masonry	338, 378	64
Partitions 4 inch thick, in dwellings	257	37
Quality of	338	56
Tile and terra cotta factories	905-h, 906	150
Wetting of	345	57
BRICKSET FURNACES, RANGES, ETC	548	95
BROKEN STONE	417	68
BUILDING DISTRICTS—(See map)		209
BUILDING CODE—Amendable by Board of Appeals	127	24
BUILDINGS—Definition of	132	25
For special uses, Part IX		148
Heretofore erected	103	19
Of mixed class	211	27
May be ordered vacated	110	21
May be ordered demolished	110, 112	21
May be better than the law requires	211	27
BUNKERS	952, 953, 954, 955	155
BUTTRESSES—For architectural embellishment	1004	164
For stiffening walls	368	61
CABLES—For elevators	672	113
CANDLE FACTORIES	905-l, 906	149
CARNIVAL BUILDINGS	1016	168
CASES—For films	875	124
CASES OF WATER ON STAGES	860	140
CAST IRON COLUMNS	479, 480, 481, 490	81
CAST IRON—Not permitted in fire escapes	642	106

	Section	Page
CEILINGS—Of basements, frame buildings, plaster-		
ing of .....	278	42
Suspended .....	244	35
CELLAR—Definition of .....	285	42
Stairs to .....	608	101
CELLARS—Fireproof openings in .....	223	31
CEMENT—Definition of .....	401	66
Grout .....	426	69
Plaster—in courts, ordinary masonry buildings .....	256	37
Interior of moving picture theaters .....	866	141
On exterior appendages .....	274	41
Mortar, definition of .....	359	60
CERTIFICATE OF PERMISSABLE LIVE LOAD .....	306	49
CERAMIC TILE—A fireproof material .....	214	29
CHANGES IN PLANS AFTER PERMIT .....	123	23
CHANGE OF OCCUPANCY .....	125	23
CHIEF OF FIRE DEPARTMENT—		
Sample of service box cover in office of .....	515	90
To join in semi-annual theater inspections .....	862	141
To regulate occupancy of department stores .....	502	86
CHIMNEY BLOCKS .....	527	92
CHIMNEYS IN APARTMENTS AND TENEMENTS .....	732	123
CHIMNEYS, SMOKESTACKS AND FLUES .....	527 to 546	92
CHUCKANUT SANDSTONE .....	337	56
CHURCHES .....	802, 803	124
Live load in .....	304	48
CHUTES—For garbage .....	735	124
To be lined with metal .....	523	91
CINDER CONCRETE—Use of limited .....	418	68
CITY COUNCIL—May permit prohibited buildings .....	902	148
CITY CLERK .....	1009	165
CITY COMPTROLLER—Bonds for temporary build-		
ings .....	1016	168
Bonds for billboards .....	1012	167
Theater license .....	864	141
Moving picture theater license .....	880	145
CITY TREASURER .....	127	24
CITY CHARTER .....	107	20
CLASSES OF BUILDINGS AND WHERE PER-		
MITTED .....	210	27
CLASSROOMS—In basements .....	886	147
CLEARANC? IN ELEVATOR SHAFTS .....	669	112
CLOTHES CHUTES .....	523	91
CLUB HOUSE—Definition of .....	132	25
CLUB HOUSES—Live load .....	304	48
COAL POCKETS .....	955	157
CODE—Subject to amendment by Board of Appeals .....	127	24
COKE—Not a fireproof material .....	216	29
COLD STORAGE AND ICE HOUSES .....	945	154
COLUMNS—Cast iron .....	479, 480, 481, 485	81, 83, 84
Steel .....	479, 480, 481, 485	81, 83, 84
Reinforced concrete .....	456 to 462	76
Reinforcement, distance from surface .....	446	75
To have true bearings .....	375	63
Fireproofing and weatherproofing of .....	218	29
Wood .....	236	33
COMMERCIAL SIZES OF TIMBERS .....	383	66
COMMISSIONER OF HEALTH—May permit barn-		
yards .....	927	152
May permit stacking of manure .....	924	151
Must approve laundry locations .....	940	154
To regulate garbage chute construction .....	735	124
COMPRESSION—In concrete .....	443	74
In reinforcement .....	—	73
Reinforcement, joints in .....	448	75
CONCEALMENT—Of posted notices unlawful .....	114	21
CONCESSIONS—When sprinklers are installed .....	502	86
CONCRETE—A fireproof material .....	214	29
Blocks .....	371	62
Capping of piles .....	320	51
Definition of .....	419	68
Expert supervision required or stresses must be		
less .....	479	81
In general .....	419 to 432	68

	Section	Page
CONCRETE—(Continued.)		
Mixers .....	420-1	68
Outer inch on columns and piers not computed .....	446	75
Piles .....	322, 323, 324, 325	53
Reinforced .....	432 to 477	71-80
Steel and cement, Part IV .....	—	66
Walls, thickness of .....	372	63
Work in freezing weather .....	429	71
Work n warm weather .....	430	71
Under water .....	431	71
CONDUCTORS—For rainwater .....	1006	165
CONFLAGRATION CONDITIONS—Defined .....	213	28
CONSENT OF NEIGHBORS TO GARAGES .....	938	154
CONTINUITY OF STAIRS .....	609	101
CONVENTION HALLS—Temporary .....	1016	168
CORNER LOT—Definition of .....	285	42
CORRECTION SHEET .....	120, 121	22
COPING OF FIREWALLS .....	374	63
CORNICES—Exterior .....	1003, 1004	164
CORBELLING OF WALLS .....	377	64
COURTS—Area of .....	287, 288, 289	45
Definition of .....	285	42
Fireproof openings in .....	223	31
Walls not of masonry, when .....	242	34
Walls to be of masonry, when .....	217, 236, 255	29, 33, 37
COVES—Plaster .....	911	150
COWS—Takes two to make a dairy .....	928	152
CROSS AISLES .....	815	128
CROSS-BRIDGING—Frame buildings .....	272	41
Ordinary masonry buildings .....	259, 260	38
CRUSHED BRICK .....	418	68
CRUSHED STONE .....	417	68
CURTAINS—In docks .....	951, 952	155
CURTAIN WALLS—Definition of .....	351	58
CURTAIN WALLS—Concrete .....	463	78
CUTTING OF TIMBERS .....	262, 275	39-41
DAIRY—Definition of .....	928	152
DAIRY STABLE .....	905-c, 906, 928	149-152
DANGEROUS CONDITIONS—Superintendent shall		
order corrected .....	111	21
Concessions as to alterations does not condone .....	1035	174
DEAD LOAD—Definition of .....	302	48
To be indicated on plans .....	466	79
DEFLECTION—In reinforced concrete .....	471	80
DEFINITIONS—Alley .....	132	25
Amusement hall .....	822	129
Apartment .....	702	117
Area .....	132	25
Assembly hall .....	801	124
Basement story .....	285	42
Bearing wall .....	351	58
Brick masonry .....	341	56
Building .....	132	25
Building code .....	101	19
Building districts (see page 209) .....	201 to 205	27
Cellar .....	285	42
Cement .....	401	66
Cement mortar .....	351	58
Church .....	802	124
Classes of buildings .....	210	27
Club house .....	132	25
Concrete .....	419	68
Conflagration conditions .....	213	27
Corner lot .....	285	42
Court .....	285	42
Curtain wall .....	351	58
Dary stable .....	928	152
Dead load .....	302	48
Detention, place of .....	304	48
Division wall (now called "fire wall") .....	132	25
Dwelling .....	132	25
Established grade .....	132	25
Exhibition, place of public .....	304	48

DEFINITIONS—(Continued.)	Section	Page
Exit .....	301	124
Exterior court .....	285	42
Factory .....	132	25
Filler wall .....	351	58
Fire door .....	510	88
Fireproof buildings within meaning of this code .....	212, 232	27-32
Fireproof openings .....	223	31
Fire wall parapets .....	374	63
Fire wall (see division wall) .....	132	25
First story .....	285	42
Flat building .....	132	25
Frame buildings .....	270, 274, 281	40, 41, 42
Front of lot .....	702	117
Garage .....	132	25
Garage, private .....	938	154
Grade (see established and natural grades) .....		
Gravel .....	415	68
Ground story .....	285	42
Habitable rooms .....	132	25
Hard plaster .....	132	25
Height of buildings .....	230	32
Height of a story .....	370	62
Hotel .....	132	25
Incombustible materials .....	215, 216	29
Inside lot .....	1285	42
Inspector .....	132	25
Interior court .....	285	42
Kitchenette .....	702	117
Lime mortar .....	339	56
Lime and cement mortar .....	339	56
Limited buildings .....	905	149
Live load .....	303	48
Lodging house .....	132	25
Lot line .....	132	25
Masonry .....	132, 336	25-53
Masonry buttresses .....	368	61
Mill buildings .....	236	33
Moving picture machines .....	865	141
Moving picture theater .....	865	141
Natural grade .....	132	25
Non-bearing wall .....	351	58
Office buildings .....	132	25
Open lot .....	132	25
Ordinary masonry building, as meant by this code .....	255, 266	37-40
Owner .....	132	25
Party line court .....	285	42
Party wall .....	132	25
Person .....	132	25
Prohibited buildings .....	902	148
Public assembly, places of .....	801	124
Public hall .....	132	25
Rear of lot .....	702	117
Reinforced concrete .....	432	71
Retaining wall .....	132	25
Roof yard .....	713	120
Rubble, masonry .....	336	55
Sand .....	414	68
School .....	833	146
Shaft .....	285	42
Skeleton framing .....	488	84
Store building .....	132	25
Story .....	285, 370	42, 62
Street .....	132	25
Tenement .....	702	117
Theater .....	832	130
Thoroughfare .....	285	42
Through lot .....	132	25
Vieweer .....	132	25
Warehouse .....	132	25
Wire glass .....	132	25
Workshop .....	132	25
Yard .....	285, 702	42, 117

DEMOLITION OF BUILDINGS—May be ordered	Section	Page
when .....	110	21
Permit for, required .....	116	22
Method of procedure .....	1041	175
DEPARTMENT STORES .....	502	86
DEPOTS—Live load .....	304	48
DETRIMENTAL USES OF APARTMENTS .....	734	124
DETENTION—Places of, defined .....	304	48
DIAGRAM OF EXITS ON PROGRAMMES .....	857	139
DINING ROOM .....	702	117
DISTANCE APART OF FRAME BUILDINGS .....	286	44
DISTRICTS AND CLASSES OF BUILDINGS—PART II—		
DISTRICT—Map of .....	27	27
*DIVISION WALL—Definition of .....	132	25
*DIVISION WALLS—Openings in .....	510	88
DOCKS—Buildings on .....	950 to 954	155
DOG POUNDS .....	905-d, 906	149
DOORS—Alsove .....	724	122
Automatic closing device for .....	510	88
Automatic fire, in fire walls .....	504-508	87
Automatic fire, Mill buildings, boiler rooms .....	243	35
Automatic fire, to freight elevators .....	666	111
"Bunce" automatic .....	510	88
Fire .....	510, 511	88
In attic partitions .....	509	88
In division walls .....	510	88
In elevator enclosures .....	666, 667	111
In entrance stair halls .....	633	105
On stair landings .....	618	102
Opening on fire escapes .....	640	106
Metal covered .....	223	31
Minimum size, at stair hall entrance .....	633	105
Self-closing fire .....	510	88
Stair enclosure .....	631	105
To fire escapes, size of glass in .....	641	106
To pent houses .....	653	109
To toilet rooms, to be self-closng .....	292	47
DORMERS—How constructed .....	1003	163
If of wood .....	274	41
DOWN SPOUTS .....	1006	165
DRAFT CURTAINS—In docks .....	951, 952	155
DRAWINGS—Not required, when .....	119	22
To be kept at the works .....	109	20
To be stamped "approved" .....	121	22
To show construction of forms .....	466	79
DRILL HALL—Live load .....	304	48
DRY ROOMS .....	558	97
DUMB WAITER SHAFTS—Lining of .....	523	91
DRAFT PARTITIONS .....	1001	162
DWELLINGS—Definition of .....	132	25
Distance apart .....	286	44
Location on lot .....	286	44
Masonry, foundation for .....	332	54
Stairs in .....	607	101
Exceptions n favor of .....		
Alcoves permitted .....	724	122
Stairway requirements .....	601	98
Fire walls .....	506	87
Height of ceilings .....	721	121
Smoke vents .....	526	91
Thickness of chimney walls .....	537	93
Service valves at curb omitted .....	515	90
Transoms not required .....	723	122
Window area not fixed .....	722	122
Brick partitions 4" thick permitted .....	257	37
Elevator provisions do not apply .....	660	109
ECCENTRIC LOADING—On materials and founda-		
tions .....	308	50

\*"Division wall" is designated in this index for the convenience of those who have become familiar with the term by reason of its use in former ordinances. The framers of this code call these walls "fire walls", and what was formerly called a fire wall is called a "fire wall parapet."



	Section	Page
ECCENTRIC LOADING—On columns.....	479	81
EGRESS—Means of.....	PART VI	98
EGRESS—Lack of.....	110-d	21
ELECTRIC SIGNS.....	1003, 1009	165
ELEVATORS—		
Alterations to.....	680	114
Baggage crates on forbidden.....	671	112
Blanket provisions.....	660	109
Bumpers.....	682	115
Cables.....	672, 674	113
Cabs.....	670, 671	112
Clearance required.....	669	112
Flue linings not required.....	528	92
Combined freight and passenger.....	690	116
Electric automatic.....	670	112
Enclosures—		
Above first story in fireproof bldgs.....	662	109
Above first story in non-fireproof bldgs.....	663	109
Below first story.....	109	109
Freight elevators.....	664-665	111
Openings in.....	666-668	111
Facilities for inspection and tests.....	689	116
Factor of safety to be doubled.....	675	113
Freight, openings on cage.....	671	112
Freight, passengers on.....	690	116
Grating, over shaft.....	677	114
Guide rails.....	678	114
Grilles.....	670	112
Hand rope operating.....	683	115
Head room top of shaft.....	676	113
Hydraulic.....	680	114
In apartment houses.....	673	113
In dwellings need not apply.....	660	109
In hospitals.....	673	113
Inspection must be made promptly.....	687	115
Live load on.....	673	113
Machinery at top of shaft.....	677	114
Material hoisting.....	1020	169
Operators, age of.....	692	116
Overspeed stops.....	681	115
Passengers, number of, finished installation.....	673	113
Passengers, number of, material hoists.....	1020	147
Pent house, over.....	689	116
Pits, depth of.....	679	114
Safety devices.....	680, 681	114
Safety devices on old elevators.....	680	114
In sidewalks.....	184	184
Service.....	690	116
Sheave supports.....	675	113
Size, proportion to engine.....	673	113
Superintendent must inspect within 6 hours.....	687	115
Test after alteration.....	685	115
Test, annual.....	686	115
Test upon installation.....	684	115
Tests, how made.....	688	116
Unsafe, to be condemned.....	687	115
Use of, during construction.....	691	116
Use of, when completed.....	690	116
Worm gear machines.....	680	114
ENCLOSED STAIRS.....	625	104
ENTRANCES ARE ALSO EXITS.....	801	124
ENTRANCE STAIR HALL.....	634	106
EQUIVALENT METHODS AND MATERIALS.....	129	24
ERECTION OF STEEL.....	492, 493, 494	85
ERRORS DISCOVERED AFTER PERMIT.....	124	23
ESTABLISHED GRADE—Defined.....	132	25
EXCAVATIONS.....	328, 329, 330	54
EXHIBITIONS—Places of public.....	304	48
EXIT—Definition of.....	801	124
EXIT DOORS—Minimum size of.....	633	105
EXIT LIGHTS—		
Public assembly halls.....	819	129
School auditoriums.....	891	147
Theatres.....	856	139

	Section	Page
EXITS—Obstructions in.....	601	98
EXITS—Diagram of on programmes.....	857	139
EXPERT INSPECTION CONCRETE.....	467, 468, 469	79
EXPERT INSPECTION OF STEEL.....	484	84
EXPLOSIVES—Buildings for manufacture of.....	902-d	148
EXPOSITION BUILDINGS.....	1016	168
EXTENSION OF TIME ON PERMIT.....	122	23
EXTERIOR APPENDAGES.....	1003, 1004	163
EXTERIOR COURT—Definition of.....	285	42
EXTERIOR OPENINGS—Fireproof, when.....	246	36
EXTERIOR WALLS—To be of masonry, when—		
Fireproof buildings.....	217	29
Mill buildings.....	236	33
Ordinary masonry buildings.....	255	39
EXTERIOR WOODWORK ON F. P. AND MILL		
FACTORY—Definition of.....	132	25
FACTORIES, FIREPROOF—Height of.....	228, 229, 230	32
FEE FOR APPEAL TO BOARD OF APPEAL.....	127	24
FENCES.....	1013	167
FENCES ON ROOF YARDS.....	714	121
FILLER WALL—Definition of.....	351	58
FILM EXCHANGES.....	971 to 976	157
FILMS—Cases for in theatres.....	875	144
FINAL INSPECTION OF ASSEMBLY HALLS.....	821	129
FINAL INSPECTION OF MOVING PICTURE THEATRES.....	880	145
FINAL INSPECTION OF THEATRES.....	864	141
FINISH CEMENT FLOOR NOT PART OF SLAB.....	452	76
FINISH—METAL INTERIOR.....	231	32
FINISH, WOOD—		
Fireproof building.....	226	27
Frame buildings.....	270	40
Mill buildings.....	245	35
Ordinary masonry buildings.....	257	38
FIR—		
Allowable stress (see table, page 214).....	379	64
Traps in stage floors.....	852	137
FIRE ALARMS IN THEATRES.....	861	140
FIRE DISTRICTS.....		209
FIRE DOORS—		
Alley openings—		
Fireproof buildings.....	223	31
Mill buildings.....	246	36
Amusement halls.....	825	130
Basements—		
Fireproof buildings.....	223	31
Mill buildings.....	246	36
Stair enclosures in.....	629	104
Boiler rooms—		
All buildings other than dwellings.....	556	97
Mill buildings.....	243	35
Ordinary masonry buildings.....	265	40
Construction of.....	223	31
Department stores.....	502	86
Division walls—		
In any building.....	510	88
In mill and ordinary masonry buildings.....	504	87
Where walls cross halls.....	508	88
Dock buildings over, 500 ft. long.....	952	155
Dressing rooms—		
In amusement halls.....	827	130
In theatres.....	851	137
Dry rooms.....	558	97
Elevator enclosures—		
Below 1st floor.....	661	109
Certain occupancy and use.....	665	111
Freight elevators.....	666	111
In department stores.....	502	86
In fireproof buildings.....	9662	10..
In non-fireproof buildings.....	663	109
Exterior openings first district—		
Fireproof buildings.....	223	31
Mill buildings.....	246	36
Fireproof towers.....	620	103

# Ehrlich-Harrison Company

## HARD WOOD LUMBER —AND— FLOORING

Railroad Avenue  
at Connecticut Street

Seattle, Wash.

### INDEX TO BUILDING CODE

225

	Section	Page
FIRE DOORS—(Continued.)		
Fireproof buildings .....	223	31
Firewalls—		
In any building .....	510	88
In mill and ordinary masonry buildings .....	504	87
Where walls cross halls .....	508	88
Frame buildings .....	286	44
Garages .....	935	153
Hanging of .....	510	88
Hospitals .....	912	150
Mill building boiler rooms .....	243	35
Mill buildings besides boiler rooms .....	246	36
Moving picture theatres .....	866	141
Partitions in theatres .....	851	137
Prosceniums—		
In amusement halls .....	825	130
In theaters .....	848	136
Public assembly halls .....	805, 806	125
Shaving vaults .....	559	97
Smoke houses .....	557	27
Star enclosures—		
At exits .....	630	105
In department stores .....	502	86
Operation of .....	631	105
Serving both sides division wall .....	605	99
Tower .....	620	103
Superintendent's discretion as to hanging of .....	510	88
Synonym, Fireproof openings, which see.		
Theatre exits—		
All usual .....	840	132
Emergency .....	842	134
To passages through other occupancy .....	833	131
Tower stairways .....	620	103
Vaults for shavings .....	559	97
FIRE BRICK FLUE LININGS .....	538	93
FIRE DRILLS IN THEATRES .....	862	141
FIRE ESCAPES—		
Construction of .....	640 to 652	106
In courts .....	289	45
Ladder with stand pipes .....	320	129
May be omitted, when .....	605	99
Number required .....	602	98
Number required modified by conditions named .....	605	99
On fireproof assembly halls .....	810	126
Refuge and detention buildings .....	913	150
FIRE EXTINGUISHERS—		
In moving picture theatres .....	879	145
In theaters .....	860	140
FIRE FIGHTING APPARATUS—		
In moving picture theatres .....	879	145
In theatres .....	860	140
Maintenance of .....	862	141
FIRE HAZARD REGULATIONS—PART IV .....		66
FIRE MARSHAL .....	502	86
FIRE LOSSES—Appraisal of .....	1040	174
FIREPLACES—		
Must have chimneys .....	732	123
Structural requirements .....	547	95
FIRE PREVENTIVE APPARATUS .....	110-d	21
FIREPROOF—		
Assembly halls, required, when .....	807	125
Buildings—		
Assembly halls on upper floors .....	810	126
Blanket clause .....	232	32
Courts in, size of .....	289	45
Definition of .....	212	28
Fire escapes required on .....	603	98
Fire escapes required on, for assembly halls .....	810	126
Height of .....	227 to 231	32
Height of, when habitable .....	703	117
Stairs in .....	615	101
Where required .....	210	27
Churches required, when .....	803	125
Materials defined .....	213	27

	Section	Page
<b>FIREPROOF—(Continued.)</b>		
Openings—		
Definition of	223	31
In fireproof buildings	223	31
In frame buildings	236	44
In elevator shafts	665	111
In mill buildings	243	35
In ordinary masonry buildings	265	40
In stair enclosures, doors	631	105
In stair enclosures, sash	632	105
Partitions	224, 225	31
Places of refuge and detention	910	150
Sash, interior	632	105
Tower stairways	620	103
Theatres required, when	834, 835, 836	131
Windows—		
In elevator shafts	668	112
In garages	935	153
Opening on fire escapes	641	106
<b>FIREPROOFING OF STEEL—</b>		
In fireproof buildings	218, 219, 220	29, 30
In mill buildings	237	33
<b>FIREPROOFING OF STEEL—Exceptions allowed</b>	221	30
<b>FIRE SHUTTERS—</b>		
How constructed	511	89
Where required	223	31
<b>FIRE STATIONS—Automobiles in</b>	939	154
<b>FIRE STATIONS SUBJECT TO CODE</b>	102	19
<b>FIRESTOPPING, MASONRY—</b>		
In court walls, ordinary masonry buildings	256	37
Over bearing partitions, frame buildings	273	41
Over bearing partitions, ordinary masonry buildings	260	39
<b>FIRESTOPPING, WOOD</b>	256	37
<b>FIRE WALLS—("Division walls" in former ordinances)</b>		
Area between	501	86
Construction of	504	87
Crossing halls	508	88
Discretionary power of superintendent in re.	505	87
Distance apart	506	87
Extension above roof	374	63
In attics	509	88
In docks	951, 952	155
Large rooms intercepting	507	88
Openings through	506	87
Reduced in number or omitted, where	503	86
Where required	501	86
Wooden	506	87
<b>FIRE WALL PARAPETS ("Fire walls" in former ordinances)</b>	374	63
<b>FIRST STORY—Definition of</b>	285	42
<b>FLAG POLES</b>	1007	165
<b>FLAT BUILDINGS—Definition of</b>	132	25
<b>FLOORS—Finished in fireproof buildings</b>	222	30
<b>FLOORS IN MILL BUILDINGS</b>	238	33
<b>FLOORS IN ORDINARY MASONRY BUILDINGS</b>	261	39
<b>FLUE LININGS—</b>		
Boiler flues	537	93
Of fire brick	538	93
Where required	528	92
<b>FOOTINGS—Structural steel in</b>	218	29
<b>FORMS—Plans and specifications required</b>	466	79
<b>FORMS FOR CONCRETE—</b>		
Construction of	472, 473	80
Plan or required	466	71
Removal of, during freezing weather	429	41
Removal of, ordinarily	474	80
<b>FORBIDDEN BUILDINGS</b>	902	148
<b>FORMULAE—</b>		
Bending moments reinforced concrete	437	73
Compression in reinforcement	442	74
Masonry piers	343	57
Pile driving	321	53
Plate girders	483	83

	Section	Page
<b>FORMULAE—(Continued.)</b>		
Rectangular slabs	438	73
Steel and iron columns	479	81
Wood posts	380	65
<b>FOUNDATIONS, GENERAL</b>	326 to 336	53
Computation of live load on	307	49
Wooden	333	55
On tide and shore lands	333	55
<b>FOUNDRIES</b>	905-g, 906	149
<b>FRAME BUILDINGS—</b>		
Adjacent to second district	280	42
Blanket Clause	281	42
Definition of	270	40
Distance apart	286	44
Distance from lot lines	286	44
Framing in	270 to 279	40, 42
Height of, if apartment houses	703	117
Height of, ordinarily	279	42
Office buildings	276	41
Where permitted	210	27
<b>FREEZING WEATHER—Brickwork in</b>	345	57
<b>FREEZING WEATHER—Concrete work in</b>	429	71
<b>FRONT OF LOT—Definition of</b>	702	117
<b>FROST TO BE GUARDED AGAINST</b>	335	55
<b>FURNACE ROOMS</b>		
In mill buildings	243, 246	35
In ordinary masonry buildings	265	40
<b>FURNACE, BRICKSET</b>	548	95
<b>FURRING ON WALLS—To be firestopped</b>	260	39
<b>FURRING ON WALLS BASEMENT SLEEPING ROOMS</b>	731	123
<b>GARAGE—Definition of</b>	132	25
<b>GARAGES</b>	935 to 939	153
Live load	304	48
<b>GARBAGE—Disposal from apartments</b>	735	124
<b>GATES TO ELEVATORS</b>	664, 666, 667	111
<b>GAS AND WATER SERVICE BOXES</b>	515	90
<b>GAS DEVICES—Protection required</b>	553, 554	96
<b>GAS WORKS</b>	905-u, 906	150
<b>GIRDERS—Wood, built up</b>	381	65
Wood, minimum dimension	236	33
<b>GLUE FACTORIES</b>	902-1	149
<b>GRADE—(See established and natural grades.)</b>		
<b>GRADIENTS AT THEATER ENTRANCES</b>	837	132
<b>GRADING CAMPS</b>	1016	168
<b>GRAIN ELEVATORS</b>	955	157
<b>GRAND STANDS—Live load</b>	304	48
<b>GRAVEL</b>	415	68
<b>GRAVEL ROOFS—Mill buildings</b>	240	34
Ordinary masonry buildings	261	39
<b>GROUND STORY—Definition of</b>	285	42
<b>GROUT</b>	426	69
<b>GUARDS ON MACHINERY</b>	1024	171
<b>GUARDS ON SCAFFOLDS</b>	1022	170
<b>HABITABLE ROOMS—Defined</b>	132	25
<b>HABITATION OTHER THAN DWELLINGS—Frame buildings</b>	276	41
<b>HAND RAILS—On stairs</b>	619	103
On enclosed stairs to roof	653	109
On stairs in fireproof towers	620	103
On stairs in theatres	847	135
<b>HARD PLASTER—Definition of</b>	132	25
<b>HAZARDOUS STORAGE</b>	901	148
<b>HEADROOM ON STAIRS</b>	616	102
<b>HEARING BEFORE BOARD OF APPEALS</b>	127	24
<b>HEARTHS</b>	547	95
<b>HEATING OF THEATRES</b>	859	140
<b>HEIGHT—Above grade of assembly halls</b>	810	126
Above grade of schools	890	147
Above grade of theaters	839	132
Above sidewalks of signs	1011	167
Of a story, defined	370	62

	Section	Page
HEIGHT—Above grade of assembly halls—(Continued.)		
Of billboards	1012	167
Of buildings, defined	230	32
Of ceilings of habitable rooms	721	121
In schools	887	147
Of exterior balconies	1004	164
Of fences	1013	167
Of fireproof apartment houses	703	117
Of fireproof buildings	227 to 231	32
Of frame apartment houses	703	117
Of frame ebuidins	279	42
Of hand rails on stairs	620	103
Of interior balconies	1002	163
Of mill buildings	248	36
Of mill building apartment houses	703	117
Of ordinary masonry apartment houses	703	117
Of ordinary masonry buildings	264	40
Of places of habitation	703	117
Of places of refuge and detention	910	150
Of sheds, first and second districts	1015	167
Of stair risers	617	102
Of tenements and apartments	703	117
Of towers on fireproof buildings	229	32
Of towers and spires—Frame buildings	279	42
Mill buildings	248	36
Other masonry buildings	264	40
HOISTS—For materials	1020	169
HOLLOW TERRA COTTA FURRING—		
Basement sleeping and living rooms	731	123
HOLLOW TERRA COTTA WALLS	371	62
HOLLOW WALLS	373	63
HOODS OVER RANGES—		
Flues from to have flue lining	528	92
HOODS OVER HOTEL RANGES	549	95
HOOPED COLUMNS	459, 460	78
HOSE REELS—In amusement halls	831	130
In stables	923	151
In theatres	858	139
In docks	952	155
HOSPITALS—Classed as "Limited Buildings"	905-a	149
Coved angles required	911	150
Elevators in	912	150
Live load	304	48
HOT AIR DUCTS AND REGISTERS	546	94
HOTEL—Definition of	132	25
Live load	304	48
HOTEL RANGES	549 to 552	95
HOUSE MOVING PERMITS	22	177
HOUSE NUMBERS		
ICE HOUSES	945, 946	154
ILLUMINATED SIGNS	1008, 1009	165
INCOMBUSTIBLE MATERIALS—Defined	215, 216	29
INCOMBUSTIBLE PARTITIONS—Defined	225	31
INCOMBUSTIBLE STUD CONSTRUCTION—		
Required certain frame buildings	277	42
Required for boiler rooms	556	97
Required for dry room	558	97
INCOMPLETE DRAWINGS	118	22
INFLAMMABLES—In apartments and tenements	734	124
On roof	525	91
Storage of, in theatres	833	131
INSANE ASYLUMS	902-a	149
INSIDE LOT—Definition of	285	42
INSPECTION—Annual, of roof signs	1009	165
Semi-annual, of theatres	862	141
Of concrete forms	473	80
During placing of concrete	467, 468, 469	79
Of steel at mills	484	84
Required before lathing	520	90
INSPECTOR—Definition of	132	25
INTERFERENCE WITH INSPECTIONS	108	20
INTERIOR BALCONIES	1002	163
INTERIOR COURT—Definition of	285	42

	Section	Page
INTERNAL STRESSES REINFORCED CONCRETE—		
Calculation of	439	73
IRON—Cast and wrought	477 to 480	80
Cupola chimneys	540	94
Mills	509-p, 906	150
Store fronts	350	58
JOINTS—In reinforced concrete	447	75
JOIST ANCHORS	377	64
JOISTS—		
Bearings of—In frame buildings	272	41
In ordinary masonry buildings	259	37
To be self releasing	377	64
JOIST HANGERS	382	65
JUNK SHOPS	905-f, 906	149
KETTLES—Candy	554	96
KITCHENETTE—Definition of	702	117
KITCHENETTES—Ventilation of	290	46
LADDERS TO SCUTTLES	652	109
LAITANCE—		
To be cleaned off	426	69
To be prevented in sub-aqueous work	431	71
LATERAL EARTH PRESSURE	310	50
LATERAL PRESSURES—Unusual	365	61
LATTICE COLUMNS	485	84
LAUNDRIES	940	154
LEASEHOLD RIGHT—Evidence of may be required	117	22
LIFE OF PERMIT	122	23
LIGHT, AIR AND VENTILATION	287 to 293	44
LIGHT, AIR AND VENTILATION—Lack of	110-d	21
LIGHTING—		
Of halls	635	106
Of moving picture theatres	877	144
Of public assembly halls	819	129
Of schools	896	148
Of theatres	856	139
LIGHTS AT STEPS IN AISLES	815	128
LIME AND CEMENT MORTAR DEFINED	339	56
Characteristics of	339	56
MORTAR—Defined	339	56
LIMITED BUILDINGS	905	149
LIVE LOAD—		
Assumed for various buildings	304	48
Balconies, interior	1002	163
Ceilings	244	35
Definition of	303	48
Determined by Supt. when	305	49
Elevator cabs	673	113
Fire escape balconies	644	107
Fire escapes—		
Fire escape ladders	646	107
Fire escape stairways	650	108
Fire escapes on theatres	842	134
Indicated on plans	466	79
Placarded in certain buildings	306	49
Reduction of, in high buildings	307	49
Theatre stairs	842	134
LOADS PERMITTED AT FOUNDATION	314	51
LODGING HOUSE—Defined	132	25
LODGING HOUSE—Live load	304	48
LODGE HALLS—Live load	304	48
LOOKOUTS FOR CORNICES	1003	163
LOT LINE—Defined	132	25
LUMBER YARDS	905-n, 906	150
MACHINERY GUARDS	1024	171
MANSARD ROOFS	261	39
MANURE DISPOSAL	924	151
MAP OF FIRE DISTRICTS		209
MARQUEE—Live load	303	48
See also	177 to 179	
MASONRY	331 to 378	54
MASONRY BUTTRESSES—Definition of	368	61

	Section	Page
MASONRY—		
Defined in general terms.....	132	25
Defined in specific terms.....	336	55
Firestops—		
In court walls, ordinary masonry buildings.....	256	37
Over bearing partitions, frame buildings.....	273	41
Over bearing partitions, ordinary masonry buildings.....	256	37
Supported on wood.....	376	64
Thickness, ratio.....	372	63
MASS CONCRETE—Strength of.....	441	73
MASS CONCRETE.....	419 to 432	68
MATERIALS OF CONSTRUCTION.....	311, 312, 313	50
MAYOR—		
Annual report to by Board of Appeal.....	131	25
May revoke electric sign permits at pleasure.....	1009	165
Must approve certain emergency actions.....	112	21
MEANS OF EGRESS.....	PART VI	98
MEANS OF EGRESS FROM ROOF YARDS.....	713	120
METAL CASES FOR FILM.....	875	144
METAL CEILINGS—		
In mill buildings.....	244	35
In ordinary masonry buildings.....	263	39
Sheathing required for.....	263	39
METAL COVERED DOORS—See "Fire Doors."		
METAL FRAMES—See "Fireproof Openings."		
METAL LATH AND PLASTER—		
Ceilings of boiler rooms, mill buildings.....	243	35
Ceiling forming attic in mill buildings.....	244	35
Ceiling of basements.....	263	39
Courts and shafts, ordinary masonry buildings.....	256	37
Dressing rooms.....	827	130
Exterior appendages.....	274	41
Halls and passages, frame buildings.....	276	41
Halls and passages, ordinary masonry buildings.....	263	39
Partitions mill buildings.....	241	34
Picture machine booths, exterior of.....	873	143
Theatres, outside of first district.....	835	131
Wall and ceilings mill buildings.....	244	35
METAL LINING OF CHUTES.....	523	91
METAL ROOFING.....	240	34
METAL SHEATHING OF COURTS—		
Ord. masonry buildings.....	256	37
METAL TRIM.....	214	29
METAL—See also "Sheet Metal."		
MILL BUILDINGS.....	236 to 249	33
Apartments, height of.....	703	117
Blanket clause.....	249	37
Definition of.....	236	33
Height of, other than apartment houses.....	243	36
Where permitted.....	210	27
MILL CONSTRUCTION ROOFS—On fireproof schools.....	884	146
MINERAL WOOL—		
Around pipes and flues, frame building.....	273	41
Around pipes and flues, mill buildings.....	260	39
MINOR REPAIRS.....	119	22
MIRRORS IN THEATRES.....	840	132
MISCELLANEOUS PROVISIONS.....	PART X	162
MIXED OCCUPANCY.....	970	157
MOVING OF BUILDING.....	116	22
MOVING PICTURE FILM EXCHANGES.....	971 to 986	157
MOVING PICTURE MACHINE BOOTHS.....	871 to 882	143
MOVING PICTURE THEATRES.....	865 to 882	141
MOVING PICTURE THEATRES—Live load.....	304	48
MORTAR.....	339	56
MUD SILLS.....	333	55
MUTILATION OF POSTED NOTICES.....	114	21
NATIONAL BOARD OF FIRE-UNDERWRITERS—		
Classification of specially hazardous articles.....	901	148
Regulation as to sprinkler equipment.....	247	36
NATURAL GRADE—Definition of.....	132	25
NEGATIVE MOMENT—Reinforced concrete.....	437	73
NEW MATERIALS TO BE TESTED.....	313	50

	Section	Page
NEW TYPES OF REINFORCED CONCRETE.....	434	71
NON-BEARING PARTITIONS.....	271	40
NON-BEARING WALLS.....	351	58
NON-COMPLIANCE WITH CODE—		
Building declared a nuisance.....	1097	176
Made a misdemeanor.....	1096	176
Work may be stopped for.....	109	20
NOTICES—Posted—		
Decisions of Board of Appeal.....	129, 130	24
Directing way to fire escapes.....	651, 652	108
Indicating permissible live loads.....	306	49
Limited buildings, contemplated.....	906	150
Ordering buildings demolished.....	110, 113	21
Ordering buildings vacated.....	110, 113	21
Ordering work stopped.....	109	20
Ordering repairs.....	111	21
Permit placard.....	116	22
Prohibited buildings, contemplated.....	904	149
Regulations of Board of Appeal.....	129, 130	25
Stables, contemplated.....	929	152
Mutilation, removal, or concealment, of.....	114	21
NOTICE OF INTENT TO ENTER		
PRIVATE APARTMENTS.....	108	20
NUMBERS, BUILDINGS TO HAVE.....		177
OCCUPANCY—Change of.....	125	23
OCCUPANCY—Mixed.....	970	157
OCCUPANCY—Subject to regulation by Fire Marshall.....	502	86
OFFICE BUILDINGS—		
Definition of.....	132	25
Frame.....	276	41
Live load.....	304	48
Mill construction.....	244	35
O. K. FOR LATHING.....	520	90
OPEN LOT—Definition of.....	132	25
OPENINGS ABOVE ROOF—Mill buildings.....	246	36
OPENINGS IN STAIR ENCLOSURES—		
At first story.....	628	104
Doors.....	631	105
SASH.....	632	105
OPEN SPACE RESERVED FOR LIGHT AND AIR.....	287	44
ORDINANCE REQUIRED—In case of prohibited buildings.....	904	149
ORDINARY MASONRY BUILDINGS.....	255 to 266	37
Adjacent to first district.....	265	40
Apartment houses, height of.....	703	117
Blanket clause.....	266	40
Definition of.....	255, 266	37
Height of.....	264	40
Towers and spires on.....	264	40
Where permitted.....	210	27
OWNER—Definition of.....	132	25
OWNERSHIP—Evidence of may be required.....	117	22
PACKING HOUSES.....	905-t, 906	150
PAINT FACTORIES.....	905-j, 906	150
PAINTING OF FIRE ESCAPES.....	642	106
PAINTING OF STRUCTURAL STEEL.....	496	85
PANIC BOLTS.....	842	134
PANTRIES—Ventilation of.....	291	47
PARTITIONS—		
Brick 4" thick in dwellings.....	257	37
Fireproof.....	224, 225	31
Incombustible stud, boiler rooms.....	556	97
Incombustible stud, certain frame buildings.....	277	42
Incombustible stud, dry rooms.....	558	97
In mill buildings.....	241	34
"Rabbit".....	241	34
Solid plaster.....	241	34
Stud bearing.....	257, 258	37
PARTY LINE COURT—Defined.....	285	42
PARTY WALL—Defined.....	132	25
PASSAGEWAY YARDS TO STREETS.....	712	120
PASSAGEWAYS—Metal lathed and plastered.....	276	41



	Section	Page
PASSENGERS ON ELEVATORS—Number permitted	673	113
PENAL CLAUSES	1096, 1097	176
PENT HOUSES—		
Height permitted	1004	164
Over elevators	689	116
Power stairs where required	653	109
PERMISSION TO MAKE CHANGES IN PLANS	123	23
PERMITS—		
Asbestos curtains	849	136
Buildings on docks and wharves	954	156
Buildings generally	116 to 124	22
Change of occupancy	125	23
Extension of time on	122	23
Film exchanges	971 to 974	157
How obtained	117, 118, 120, 121	22
Issued under former ordinances	104, 105, 106	19
Limited buildings	906	150
Life of	122	23
Laundries	940	154
Minor repairs	115, 119	22
Moving buildings	116	22
Not valid if erroneously issued	124	23
Opening of moving picture theatres	880	145
Opening of public assembly halls	821	129
Opening of theatres	864	141
Placard	116	22
Portable picture machine booths	881	145
Prohibited buildings	904	149
Required, when	116	22
Revocable by Superintendent	122	23
Sheds, 1st and 2nd districts	1015	167
Stables	928, 929	152
Temporary buildings	1016	168
PERSON—Definition of	132	25
PICTURE MACHINE BOOTHS	871 to 882	146
PIERS—Proportions of	343	57
PILASTERS	368	61
PILE FOUNDATIONS	318 to 326	51
PIPE CHASES	224	31
PIPES IN REINFORCED CONCRETE	461	78
PITS UNDER ELEVATORS—Depth of	679	114
PLACARDS DIRECTING TO FIRE ESCAPES	651	108
PLACARD SHOWING THAT PERMIT IS ISSUED	116	22
PLACES OF HABITATION—		
Forbidden in theatres	833	131
PLACES OF PUBLIC ASSEMBLY	PART VIII	124
PLACES OF REFUGE AND DETENTION	506 to 509	87
PLACES OF REFUGE AND DETENTION—		
Fireproof, when	910	150
PLANS—Changes in after permit	123	23
PLANS—Errors discovered in	124	23
PLANK FRAMING	270	40
PLANK PARTITIONS—		
Courts mill buildings	242	34
Courts, ordinary masonry buildings	256	37
PLANING MILLS	905-o, 906	150
PLANS REQUIRED FOR ELECTRIC SIGNS	1009	165
PLANS REQUIRED FOR REINFORCED CONCRETE	466	79
AND FORMS		
PLASTER BOARD—		
Courts, ordinary masonry buildings	256	37
Certain ceilings, ordinary masonry buildings	263	39
PLASTERING IN MOVING PICTURE THEATRES	866	141
PLASTER NOT CONSIDERED AS FIREPROOFING	220	30
PLASTERING	520	90
PLASTER OF PARIS		
NOT A FIREPROOF MATERIAL	216	29
PLASTERING IN FRAME BUILDINGS	276, 278	42
PLASTERING IN MILL BUILDINGS	241, 243, 244	35
PLASTERING IN		
ORDINARY MASONRY BUILDINGS	263	39
PLATE GIRDERS	483	83
PLUMBING IN STABLES	922	151

	Section	Page
POLICE STATIONS—Automobiles in	939	154
PORTABLE PICTURE MACHINE BOOTHS	881	145
POST CAPS	381	65
POWERS OF BOARD OF APPEAL	126 to 132	24
POWERS OF SUPT. OF BUILDINGS—In general	107, 108	20
PROGRAMMES—Diagram of exits required on	857	139
PROHIBITED BUILDINGS	902	148
PRINTING OF REPORT—Board of Appeal	131	25
PRIVATE GARAGES	936	154
PROJECTION OF CORNICES	1004	164
PROJECTION INTO STREETS	1004	164
PROSECUTIONS PENDING	106	20
PROSCENIUM WALL—		
Amusement halls	825	130
Theatres	848	136
PROTECTION OF ADJOINING PROPERTY—		
While excavating	329	54
PROTECTION OF ADJOINING ROOFS		
DURING CONSTRUCTION	1021	170
PROTESTS AGAINST LIMITED BUILDINGS	906	150
PROTESTS AGAINST STABLES	929	152
PUBLIC		
Assembly halls	801, 804 to 821	124
Assembly, places of	801 to 832	124
Assembly, places of, live load	304	48
Buildings subject to code	102	19
Buildings, frame	276	41
Hall defined	132	25
Halls, lighting of	635	106
Halls, metal lathed and plastered	276	41
PUBLICATION REQUIRED—Prohibited buildings	904	149
RACKING OVER OF CHIMNEYS	534	93
RADIATORS IN THEATRES	859	140
RAG SHOPS	905-g, 906	149
RAINWATER LEADERS	1006	165
RAISING OF BUILDINGS	116	22
RATPROOFING OF BUILDINGS		185
RAZING OF BUILDINGS—(See demolition)		
REAR EXITS—Moving picture theatres	868	142
REAR OF LOT DEFINED	702	117
RECEPTACLES FOR MANURE	924	151
RECESSES IN WALLS—		
For radiators in theatres	859	140
Limited as to depth	364	61
RED LIGHTS AT EXITS—		
Public assembly halls	819	129
Theatres	856	139
RED LIGHTS NEAR FIRE ESCAPES	651, 652	108
REDUCTION OF LIVE LOAD	307	49
REFUGE AND DETENTION—		
Places of, frame buildings	276	41
Places of, fireproof when	910	150
Places of, live load	304	48
REGISTERS—HOT AIR—		
Construction of	546	94
Forbidden in floor of theatres	859	140
REGULATIONS—		
In re fireproof floor	217	29
In re sprinkler systems	247	36
Supplemental code	130	25
REINFORCED CONCRETE	432 to 477	71
REINFORCEMENT—Distance from surface	446	75
REINFORCEMENT—Fabrication of	475	80
REINFORCEMENT—Quality of	486, 487	84
REINFORCEMENT BARS—Distance apart	449	76
REMOVAL OF BUILDINGS	116	22
REMOVAL OF POSTED NOTICE	114	21
REPAIRS—		
Permit not required, when	119	22
To buildings	1025 to 1035	171
To prohibited buildings	903	149
RESIDENCES—Live load	304	48

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	Section	Page
RETAINING WALL—Defined .....	132	25
At curb .....	178 to	182
REPORT OF BOARD OF APPEALS .....	131	25
REVIEWING STANDS—Live loads .....	304	48
REVOCATION OF PERMIT .....	122	23
RHEOSTATS FOR MOVING PICTURE MACHINES .....	878	145
RIDING ACADEMIES—Live load .....	304	48
RIGHT OF INSPECTORS TO ENTER BUILDINGS .....	108	20
RIGGING LOFTS—		
In amusement halls .....	828	130
In theatres .....	853	137
ROOF—		
Construction, mill buildings .....	240	34
Construction, certain schools .....	884	146
Construction, steel, fireproofing of .....	221	30
Exit from stage .....	840	132
Of adjoining buildings, protection of .....	1021	170
Signs .....	1008, 1009	165
Sprinklers on docks .....	952	155
Tanks .....	1050	175
Yards .....	713 to	716
ROOFING TILE—		
On ordinary masonry buildings .....	261	39
On roof yards .....	713	120
ROOFS—Live load on .....	304	48
ROOFS OF SHEDS—1st and 2nd districts .....	1015	167
ROOFS—Protection during construction .....	1021	170
ROOMS IN APARTMENTS AND TENEMENTS .....	720, 721	121
See also .....		178
RUBBLE MASONRY—Defined .....	336	55
RULINGS ON BOARD OF APPEAL—Effect of .....	127	24
SAFEGUARDS DURING CONSTRUCTION .....	1017 to 1023	169
SAFETY DEVICE ON ELEVATORS .....	680, 681, 682, 683	115
SAND .....	414	68
SAND LIME BRICK .....	342	57
SANITARIUMS .....	905-n, 906	150
SAW DUST NOT A FIREPROOF MATERIAL .....	216	29
SCAFFOLDS .....	1022, 1023	170
SCENERY TO BE INFLAMMABLE .....	850	137
SCHOOLS .....	883 to	896
SCHOOLS—Live loads .....	304	48
SCREENS ON DWARF PARTITIONS .....	1001	162
SCUTTLES AND LADDERS .....	653	109
SEATING CAPACITY AMUSEMENT HALLS—		
How computed .....	825	130
SEATING CAPACITY CHURCHES—How computed .....	803	125
SEATS—		
Amusement halls, spacing and fastening of .....	823	129
In moving picture theatres .....	870	143
In schools .....	893	148
In theatres .....	844	134
Public assembly halls, spacing and fastening of .....	816	128
SELF CLOSING DOORS REQUIRED TO		
TOILET ROOMS .....	292	47
SEMI-ANNUAL THEATRE INSPECTION .....	862	141
SHAFT—Definition of .....	285	42
SHAFTS—Area of .....	292	47
SHAFTS—Ventilation of .....	290	46
SHAVINGS—Vaults for .....	559	97
SHEAR IN CONCRETE .....	444	77
SHEAR IN TIMBER .....	379	64
SHEATHING FOR METAL CEILINGS AND WALLS .....	263	39
SHEDS IN 1ST AND 2ND DISTRICTS .....	1015	167
SHEDS ON PIERS AND DOCKS .....	951	155
SHEET METAL—		
Basement ceilings .....	278	42
Ceilings and walls .....	263	39
Chimney Tops .....	536	93
Covering of exterior appendages .....	274	41
Covering of exterior wood work .....	1003	163
Covering of sheds in 1st and 2nd districts .....	1015	167
Covering of scuttles and pent houses .....	653	109
Covering of shelves .....	875	143

	Section	Page
SHEET METAL—(Continued.)		
Covering of wood lintels	376	64
Covering of wood work above roof	245	35
Fire stops around pipes—		
Frame buildings	273	41
Ordinary masonry buildings	260	39
Joints in, to be riveted or locked	223	31
Lining of chutes	523	91
Lining of freight elevator shafts	665	111
Lining of passenger elevator shafts	663	110
Lining of picture machine booths	873	143
Over grille work on elevators	670	112
Picture machine booths	872	143
Roofing	261	39
Skylights and curbs	1003	163
SHOWER BATHS REQUIRED—When	730	122
SHUTTERS—Fire	511	89
SHUTTERS IN PICTURE MACHINE BOOTHS	874, 875	143
SIAMESE CONNECTIONS—		
For basement sprinkler systems	513	89
For sprinkler systems	503	86
Theatre standpipes	558	139
SIDEWALKS—Over Areas		
Elevators		181
SIGNS	1008 to 1012	165
SIZE OF MOVING PICTURE MACHINE BOOTHS	871	143
SIZE REQUIRED FOR HABITABLE ROOMS	720	121
See also		177
SKELETON FRAMING	488 too 491	84
SKYLIGHTS—		
Construction of	1003	163
On dock structures	952	155
Over courts	289	45
Over stages—		
Of amusement halls	829	130
Of theatres	854	138
Protection of adjoining buildings	1021	170
SLABS—Top finish not a part of	452	76
SLATE ROOFS	261	39
SLEEPING ROOMS—In cellars and basements	731	123
SLEEPING ROOMS—Not allowed in theatres	833	131
SLEEPING ROOMS—Size required	720	121
See also		182
SLENDERNES RATIO OF CONCRETE COLUMNS	456	76
SMOKE FLUES—		
In party walls	542	94
Not to project through windows or walls	542	94
SMOKE—		
On roof yards	715, 716	121
Houses	557	97
Pipes	543, 544, 545	94
Stacks	539	93
Vents over halls and elevators	526	91
Vents over stages—		
Of amusement halls	829	130
Of theatres	854	138
SOAP FACTORIES	905-k, 906	150
SOFFITS OF STAIRS—Metal lath and plaster, when	276	41
SOLID BRIDGING—		
In frame buildings	273	41
In ordinary masonry buildings	260	39
SOLID AND STUD CONSTRUCTION—		
Boiler room enclosures mill buildings	243	35
Floors, mill buildings	238	32
Interior courts, ordinary masonry buildings	256	37
Partitions mill buildings	241	34
Roof construction, mill buildings	240	34
SOILS—Various loads permitted on	314	51
SPACING BARS—Hooped columns	459	77
Span lengths for computing moments	436	71
SPARK ARRESTERS	539	93
SPECIFICATIONS TO ACCOMPANY APPLICATION	118	22
SPECIFICATIONS FOR CEMENT—How to write	405	66
SPECIFICATIONS NOT REQUIRED—When	119	22

	Section	Page
SPIRES AND TOWERS—		
Fireproof buildings	229	32
Fireproof if on other than frame	1003	163
Frame buildings	279	42
General provisions	960	157
Mill buildings	248	36
Ordinary masonry buildings	264	40
SPICES IN REINFORCEMENT	448	75
SPRINKLER SYSTEMS—		
Dry rooms	558	97
Cellars and basements, mill buildings	247	36
Concessions as to fire walls on account of	503	86
In attic spaces mill buildings	244	35
In storage basements	513	89
On roofs of docks	952	155
Ordinary masonry buildings adjacent 1st district	265	40
Over theatre stages	858	139
STABLES	920 to 929	151
STABLES IN CONNECTION		
WITH OTHER OCCUPANCY	277	42
STABLES—Live load	304	48
STAMP OF APPROVAL ON DRAWINGS	121	22
STANDPIPES	512	89
In theatres	858	139
In docks	952	155
STAIRS—		
In dock structures	953	156
In general	620 to 625	103
In schools	891, 894	148
In theatres	847	135
Middle rail required, theatres	847	135
To balconies	1002	163
To basements in theatres forbidden	847	135
STAIR ENCLOSURES—		
In general	626 to 630	104
Plastering of frame buildings	276	41
STAIRWAYS—Metal and lath plaster, when	276	41
STEAM BOILERS—Setting of	555	97
STEAM PIPES—Not to be built in concrete	461	73
STEAMER CONNECTIONS—		
For basement sprinklers	513	89
For sprinkler system	503	86
For theatre sprinkler systems	558	97
STEEL—Reinforcing—		
Fabrication of	475	80
Not to be painted	487	84
Quality of	486	84
STEEL—Structural	477 to 496	80
STIRRUPS—Reinforcing	450, 451	76
STOCK YARDS	902-o	149
STONE MASONRY	336, 337, 348, 349	55
STOP WORK NOTICE	109	20
STORE BUILDING—Definition of	132	25
STORES—Live load	304	48
STORY—Definition of	285	42
STORY—Definition of	370	62
STORE FRONTS—Openings to basements under	521	91
Of brickwork	341	56
Of concrete, 25% less when no Inspector	469	79
Of stone work	377	64
Of timber	379	64
STREET—		
Definition of	132	25
Numbers		177
STRESSES—		
Allowable in concrete dependent on supervision	469	79
Allowed in reinforced concrete	439 to 445	73
In lbs. per sq. in. steel and iron	478	81
In lbs. per sq. in. timber	478 to 483	81
STRUCTURAL REQUIREMENTS IN GENERAL		
STUD BEARING PARTITIONS	PART III	48
	257	37

	Section	Page
SUPERINTENDENT'S DISCRETION		
TO BE EXERCISED IN RELATION TO—		
Attic spaces, mill buildings.....	244	35
Automatic sprinklers .....	244	35
Bracing of chimneys.....	535	93
Brick partitions, thickness of, in residences.....	257	37
Buildings on waterfront .....	951	155
Certain ceilings .....	277	42
Concrete aggregates .....	418	68
Conduct of brickwork .....	346	58
Division walls .....	505	87
Employment of cement tester.....	404	66
Exits from certain stables.....	925	152
Finish floors in fireproof buildings.....	222	30
Fireproofing of steel .....	446	75
Fireproof partitions .....	224	31
Fire resistive floors.....	507	88
Fire walls .....	505	87
Hanging of fire doors.....	510	88
Height of balconies, interior.....	1002	163
Ice House construction and location.....	946	155
Increasing height of old buildings .....	1027	173
Incombustible partitions .....	225	31
Locations of out-buildings.....	286	44
Method of fastening sheet metal.....	263	39
Method of firestopping pipe chases .....	244	35
Method of mixing concrete.....	421	69
Mill building floors.....	238	33
Mixed classes of construction.....	211	27
Mixed occupancy .....	970	157
Pitch of aisles .....	869	142
Proportions concrete columns.....	456	76
Plastering in moving picture theatres .....	866	141
Reinforced concrete walls.....	265	40
Repairs to fireproof buildings.....	1028	173
Selection of Roofing—		
Mill buildings .....	240	34
Ordinary masonry buildings.....	261	39
Side hill conditions .....	285	42
Size of gravel .....	416	68
Sprinklers in mill building attics.....	244	35
Towers and Spires—		
Frame buildings .....	279	42
In general .....	960	157
Mill buildings .....	243	36
Type of concrete mixer.....	420	68
Use of theatres for other purposes .....	833	131
Veneer on concrete.....	465	78
Ventilating shafts .....	285	42
Ventilation various rooms .....	291	47
Ventilation of courts.....	289	45
Wire glass in entrance halls.....	630	105
SUPERINTENDENT OF BUILDINGS—		
May enlarge list of fireproof materials.....	214	29
May extend permit.....	122	23
May revoke permit.....	122	23
May order test of foundation soil.....	316, 317, 318	51
May require test of any material .....	313	50
May take possession of unsafe buildings.....	112	21
May waive filing of drawings .....	119	22
Powers defined .....	107, 108	20
Shall inspect suspected buildings.....	111	21
To issue regulations in re sprinklers.....	247	36
SUPERVISION OF CONCRETE WORK .....	469	79
SUSPENSION OF WORK MAY BE ORDERED.....	109	20
TABLES OF WALL THICKNESSES.....	357 to 363	59
TANKS ON ROOFS—		
In general .....	1050	175
On mill buildings .....	245	35
TEE BEAM DESIGN .....	454, 455	76
TEMPORARY BUILDINGS .....	1016	168
TEMPORARY FLOORS DURING CONSTRUCTION.....	1017	169
TEMPORARY STAIRS DURING CONSTRUCTION.....	1019	169

	Section	Page
TENEMENT—		
Definition of .....	702	117
HOUSES .....	PART VI	98
TENINO SANDSTONE.....	337	56
TENSION IN CONCRETE.....	439	73
TENTS AND COVERED WAGONS.....	1014	167
TENTS—Stove pipes in .....	539	93
TERRA COTTA—		
A fireproof material.....	214	29
Flue lining .....	528	92
Flue linings for boilers .....	537	93
Furring .....	731	123
Quality of .....	340	56
Walls .....	371	62
TESTS—		
Of any material may be required.....	313	50
Of bearing capacity of soil.....	316, 317, 318	51
Of cement .....	402 to 413	66
Of concrete piles.....	325	53
Of elevator installations.....	684 to 689	116
Of finished concrete required .....	470, 471	79
Of new types of reinforced concrete.....	435	71
THEATRE—		
Definition of .....	832	130
General requirements.....	832 to 864	130
Semi-annual inspection of .....	862	141
Live load .....	304	48
THEORETICAL ASSUMPTIONS—		
Reinforced concrete .....	436	71
THICKNESS OF CONCRETE WALLS.....	372	63
THICKNESS OF FLOORS—		
Above beams .....	222	30
Mill buildings .....	238	33
Ordinary masonry buildings.....	261	39
THICKNESS OF FOUNDATION WALLS .....	333	55
THICKNESS OF WALLS.....	347 to 373	58
THIMBLES for smoke pipes .....	533	92
THOROUGHFARE DEFINED.....	285	42
THROUGH LOT DEFINED.....	132	25
TILE—Dense, a fireproof material.....	214	29
TIMBER PILES.....	318 to 321	51
TIMBER STRENGTH—To be computed at actual size.....	383	66
TIMBER—Structural.....	378 to 383	64
TIMBERS MUST BE SELF-RELEASING.....	377	64
TOILET ROOMS .....		
IN APARTMENTS AND TENEMENTS.....	730	122
TOILETROOMS—Ventilation of .....	292	47
TOWERS OF HIGH BUILDINGS.....	229	32
TOWERS AND SPIRES—		
Fireproof, where .....	1003	163
On frame buildings .....	279	42
On mill buildings .....	248	36
On ordinary masonry buildings.....	264	40
Superintendent's discretion in re.....	960	157
TOWER STAIRWAYS .....	620	103
TRANSOMS REQUIRED—When .....	722	122
TUNNELS NEAR FOUNDATIONS.....	330	54
TWO OR MORE APARTMENT HOUSES .....		
ON ONE LOT.....	705	119
UNBALANCED MOMENTS .....	458	77
UNINTELLIGIBLE DRAWINGS .....	118	22
UNSAFE BUILDINGS .....	109, 110-c, 111	21
USE OF ELEVATORS .....	690, 691, 692	116
VACATION OF BUILDINGS.....	110	21
VALUE—How construed .....	1034	174
in determining possible repair.....	971 to 986	157
VAULTS FOR FILMS.....	132	25
VENEER—Definition of .....	274	41
VENEERED BUILDINGS .....	333	55
VENEERED BUILDINGS—Foundation for .....	465	78
VENEER FACING ON CONCRETE .....	293	47
VENT DUCTS—Area of .....	526	91
VENT DUCTS NOT TO TERMINATE IN ATTICS.....		

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## INDEX TO BUILDING CODE

241

	Section	Page
VENTS FOR ESCAPE OF SMOKE—		
From docks .....	952	155
From halls .....	526	91
From stage of amusement halls.....	329	130
From stage of theatres.....	354	138
VENTILATION IN GENERAL.....	287 to 293	44
VENTILATION AND LIGHT—Lack of.....	110-d	21
VENTILATION—		
In skylights .....	1003	163
Of amusement halls .....	330	130
Of balconies .....	1002	163
Of bed pockets .....	293	47
Of courts .....	289	45
Of ends of timbers on walls.....	377	64
Of manure receptacles.....	324	151
Of permanent picture booths.....	376	144
Of portable picture machine booths.....	381	145
Of schools .....	395	148
Of sleeping rooms.....		177, 178
Of theatres .....	855	139
Of wall beds.....	293	47
Plans of for Health Department.....	294	48
Under floors where no basement.....	327	54
VIOLATIONS FORMER ORDINANCES.....	105, 106	20
VIOLATIONS OF THIS CODE—Penalty for.....	1096, 1097	176
WAGONS—Covered .....	1014	167
WALL BEDS .....	293	47
WALLS—		
Care of during erection .....	346	58
Concrete, reinforcement in .....	462, 463, 464	78
Reduction of live load on.....	307	49
Thickness of—		
Facing on.....	347, 348, 349	58
For foundations .....	333	55
For residence partitions.....	257	37
In general .....	352 to 372	58
Threatened by excavations.....	329	54
WAREHOUSE—Definition of .....	132	25
WAREHOUSE—Fireproof, height permitted 228, 229, 230.....		32
WATER AND GAS SERVICES.....	515	90
WATER CLOSETS—In apartments and tenements.....	734	124
WATER-FLUSHED GARBAGE CHUTE.....	735	124
WATER-FRONT BUILDINGS .....	950	155
WATERMAINS ENDANGERED BY FOUNDATIONS.....	330	54
WATER PIPES IN CONCRETE WORK.....	461	78
WATERPROOF MATERIALS .....	212	28
WATERPROOF PAPER .....	238	33
WATER TANKS—		
Construction of .....	1050	175
May be omitted, where.....	247	36
Supports for .....	245	35
WEATHERPROOFING OF STEEL.....	218	29
WEDGING OF COLUMNS—Forbidden.....	375	63
WHARVES—Buildings on .....	951	155
WIDTH OF AISLES IN SCHOOLS.....	893	148
WIDTH OF EXTERIOR BALCONIES.....	1004	164
WIDTH OF HALLS IN SCHOOLS.....	892	147
WIDTH OF STAIR HALLS.....	634	106
WIDTH OF STAIRS .....	616	102
WINDOWS IN ELEVATOR ENCLOSURES.....	668	112
WINDOWS—Size and number required—		
In places of habitation.....	722	122
In schools .....	888	147
WIND PRESSURE—		
Effect of on steel design.....	480	83
On bill boards .....	1012	167
On buildings .....	309	50
On flag poles .....	1007	165
On signs .....	1008, 1009	165
WIRE GLASS—		
A fireproof material .....	214	29
Definition of .....	132	25
Hotel stairway entrances.....	628	104
Minimum size in stair enclosures.....	632	105



	Section	Page
WIRE GLASS—(Continued).		
Office building stairway entrances.....	630	105
Public halls apartment houses.....	733	123
Required in fireproof openings.....	223	31
Stair enclosures.....	628, 630, 632	105
Windows facing fire escapes.....	641	106
Windows in elevator shafts.....	668	112
WIRE NETTING—		
Dry rooms.....	558	97
Elevator guards, freight.....	671	112
Elevator guards for passengers.....	670	112
Fabric for concrete around beams.....	220	30
Fire escape balustrades.....	648	107
Scaffold guards.....	1022	170
Over skylights.....	1003, 1021	163
Under skylights.....	854	133
WOOD COLUMNS—Minimum dimensions of.....	236	33
WOOD PERMITTED IN FIREPROOF BUILDINGS.....	226	32
WOOD SIGNS.....	1011	167
WOODWORK—Exterior, mill buildings.....	245	35
WOODWORK NEAR HEAT TO BE PROTECTED.....	553	98
WOODWORKING FACTORIES.....	905-m, 906	150
WORKMANSHIP—Standard of.....	312	50
WORKSHOP—Definition of.....	132	25
WRITTEN REPORTS ON CONCRETE INSPECTION.....	468	79
YARD—		
Definition of.....	285	42
Definition of.....	702	117
Size of required.....	710 to 713	119
On roofs.....	713 to 716	119
YARDS FOR APARTMENTS AND TENEMENTS.....	710	119
YARDS ON ROOFS.....	713, 714, 715, 716	120

## INDEX TO PLUMBING ORDINANCES

	Section	Page
ABANDONED WELLS AS CESSPOOLS.....	19	196
ACCESS TO BUILDINGS.....	13	193
AIR TEST.....	6	192
APARTMENT—Definition of.....	15	194
Water closet accommodations required.....	16	194
APPLICATION FOR PERMIT to be filed.....	3	191
APPROVAL CERTIFICATE.....	8	193
AREAS to be drained.....	33	202
BACK VENT—When may be omitted.....	29	201
BACK VENTING.....	24	197
BASEMENTS—To be drained.....	33	202
Water closets in.....	17	195
BENDS—Quarter bends forbidden.....	24	197
BRACING OF SOIL AND WASTE LINES.....	25	198
BRANCH SOIL AND BRANCH WASTE DEFINED.....	23	187
BRASS VENT PIPES.....	30	201
BUNK HOUSES.....	16	194
CASING OF WATER CLOSETS.....	38	204
CAST-IRON—Pipe and fittings.....	25	198
Pipe weight of, table "A".....	—	213
CELLARS—To be drained.....	33	202
Water closets in.....	17	195
CERTIFICATES OF APPROVAL.....	8	193
CESSPOOLS.....	19	196
CHANGE IN DIRECTION of soil and waste pipe.....	24	197
Of vent pipes.....	30	201
CITY WATER—Arrangements before permit.....	3	191
CLEANOUT required in case of stoppage.....	2	191
CLEANOUT.....	34	203
COMMISSIONER OF HEALTH.....	1	191
CONDEMNATION OF BUILDINGS.....		
for defective work.....	9	193
CONTINUOUS VENTING.....	28, 30	200
DEFECTIVE WORK—Inspector shall order changes.....	9	193
DEFECTS—Notice of to be posted.....	7	193
DEFINITION—Apartment.....	15	196
Branch soil and branch waste.....	23	197
Dwelling.....	15	194
Fixtures.....	3	191
Flat.....	15	194
Inspector.....	1	191
Main soil pipe.....	23	197
Main waste pipe.....	23	197
Person.....	1	191
Tenement.....	15	194
Vent pipe.....	23	197
Ventilation.....	23	197
Waste pipe.....	23	197
DEVIATIONS may be permitted by Inspector.....	22	192
DOORS TO TOILET ROOMS to be self-closing.....	17	195
DORMITORIES.....	16	194
DOWNSPOUTS.....	35	203
DRAINAGE Of water pipes.....	36	204
Of yards cellars and areas.....	33	202
DURHAM PIPE AND FITTINGS.....	25	198
DWELLING—Definition of.....	15	194
Water closet accommodations required.....	16	194
EXHAUST STEAM IN SEWERS.....	46	206
EXTRA HEAVY SOIL AND WASTE REQUIRED.....	25	198
FACTORY—Water closet accommodations required.....	16	194
FASTENING OF SOIL AND WASTE LINES.....	25	198
FEES FOR PERMITS.....	3	191

	Section	Page
FERRULES—Brass, when required .....	25	198
Weight of, Table "D" .....	—	213
FINAL INSPECTION .....	8	193
FIXTURES—Broken, no permit to renew .....	2	191
Definition of .....	3	191
Must be trapped separately .....	32	202
Not provided for by ordinance .....	22	197
FLAT—Definition of .....	15	194
FLUSH PIPES—Size of .....	18	196
GAS PIPE—Permit must be obtained .....	2	191
GAS PIPES—Sizes "I" .....	—	213
GAS PIPING .....	10, 15	205-6
GREASE TRAPS .....	32	202
HANGERS—For soil, waste and vent pipes .....	25	198
HEATERS—For water .....	36	204
HEATING SYSTEM .....	46	206
HEATING, HOT WATER .....	47	206
HEIGHT OF VENT ABOVE ROOF .....	24	197
INSPECTION OF GAS PIPING .....	43	205
INSPECTOR—Definition of .....	1	191
May permit deviations .....	22	197
To be notified when work ready for test .....	7, 8	193
To have free access to buildings .....	13	193
To supervise all plumbing .....	4	192
JOINTS—In cast-iron pipes .....	25	198
In lead pipe .....	25	198
LEADERS FOR RAINWATER .....	35	203
LEAD PIPE—Grade and weight of, Table "C" .....	—	213
Joints in .....	25	198
Supporting strips for .....	25	198
LEAD TRAPS—Size and weight .....	25	198
LEAKS—No permit required to repair .....	2	191
LEAN-TO ADDITION—Fixtures in .....	24	197
LIFE OF PERMIT .....	3	191
LIGHT SHAFTS—Area of .....	17	195
LOOP SYSTEM VENTING .....	28, 30	200-1
MAIN SOIL PIPE—Defined .....	23	197
Size of .....	24	197
MAIN VENT PIPE—Size of, Table "H" .....	—	213
MAIN WASTE PIPE—Defined .....	23	197
MANHOLES AT CLEANOUTS .....	34	203
MECHANICAL VENTILATION .....	17	195
NIPPLES—Soldering .....	25	198
NOTICES—Of defects to be posted .....	7	193
Of insanitary condition .....	14	194
To vacate, posting of .....	10	193
NUISANCE—Insanitary condition deemed a .....	12	193
ORDER TO VACATE .....	10	193
OUTHOUSES—Kinds of closets permitted .....	20	196
P TRAPS—Vents for .....	28	200
PAN CLOSETS .....	20	196
PAPER .....	21	197
PARTITIONS—Required for toilets .....	17	195
PENAL CLAUSE .....	50	206
PEPPERMINT TEST .....	8	193
PERMIT—How obtained .....	3	191
Life of .....	3	191
One may include several buildings .....	3	191
Plans must be filed first .....	17	195
Required .....	2	191
Required for any additional work .....	5	192
To use abandoned well .....	19	196
PERSON—Definition of .....	1	191
PIERS—Required under pipe .....	25	198

	Section	Page
PLANS—To be filed .....	17	195
POSTING OF PERMIT REQUIRED .....	2	191
POT TRAPS—Vents for .....	28	200
PRIVY SINKS .....	20	196
RAINWATER LEADERS .....	35	202
RANGE CLOSETS .....	20	196
REFRIGERATOR WASTE .....	37	204
RENEWAL OF PERMIT .....	3	191
REPEALING CLAUSE .....	51	206
ROUGHING IN—Ao be inspected .....	6	192
SAFETY VALVE—In hot-water heating .....	47	206
SCHOOL WATER CLOSETS—Accommodations re- quired .....	16	194
SEXES—Accommodation for different .....	16	194
SIZE OF SOIL PIPES REQUIRED .....	26	199
SMOKE TEST .....	8	193
SOIL PIPES—Size required .....	26	199
SOIL AND WASTE—Height above roof .....	24	197
To run direct .....	24	197
When no sewer .....	19	196
SOLDERING NIPPLES .....	25	198
SPECIAL FIXTURES .....	22	197
STANDARD SOIL AND WASTE—When permitted .....	25	198
STOPPAGE OF PIPES—No permit required .....	2	191
STOP WORK—Inspector may .....	4	192
STORE WATER CLOSETS—Accommodation required .....	16	194
STREET IMPROVEMENTS—Water closets required .....	16	194
TANKS FOR WATER CLOSETS .....	18	196
TESTS—Of gas piping .....	43	205
Of rough plumbing .....	6	192
TENEMENT—Definition of .....	15	194
TOILET PAPER .....	21	197
TRAPPED—Every fixture to be be .....	32	202
TRAPS—Grease .....	32	202
To be back vented .....	23 27	197-200
UNLAWFUL TO FAIL TO OBEY ORDERS OF COMMISSIONER .....	11	193
URINAL FLOORS .....	39	204
URINAL TROUGH—Not permitted .....	39	204
URINALS—Venting of .....	30	201
VACATION OF BUILDINGS .....	10	193
VENT HORN ON FIXTURES .....	29	201
VENT PIPE—Defined .....	23	197
Main size of, Table "H" .....	24	197
Size .....	24	197
VENT OPENINGS—Distance from windows .....	24	197
VENTILATION—Defined .....	23	197
Of water closets .....	17	195
VENTING BY LOOP OR CONTINUOUS METHOD .....	28	200
VENTING OF TRAPS .....	27	200
VENTS—Size of .....	31	202
WASTE—For urinals .....	38	204
From refrigerators .....	37	204
WASTE PIPE—Defined .....	23	197
Size required, Table "F" .....	—	213
WATER CLOSETS—For public improvement contr's Kinds forbidden .....	16	194
Not to be cased up .....	20	196
Number required .....	38	204
Under sidewalks .....	16	194
WATER—Heaters .....	17	195
Service .....	36	204
Supply required .....	36	204
Test .....	18	196
	6	192

	Section	Page
WEIGHT—Of brass ferrules, Table "D" .....	—	213
Of cast-iron pipe, Table "A" .....	—	213
Of lead pipe, Table "C" .....	—	213
Of wrought iron pipe, Table "B" .....	—	213
WINDOWS IN WATER CLOSETS .....	17	195
WOODEN SINKS, WASH TRAYS AND TUBS .....	38	204
WORKSHOPS—Water closet accommodation re-		
quired .....	16	194
WROUGHT IRON PIPE—Half sizes .....	28	200
Soil and waste .....	25	198
Weight of, Table "B" .....	—	213
YARDS—To be drained .....	33	202

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