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Ordinance de amendment to sections 51, 54, 55, 65, 67, 73, 83, 102, 103, 104, 106, 107, 108, 109, 111, 117, 119, 120, 122, 123, 127, 138, 153, 156, 158, 161, 162, 166, 167, 168, 169, 170, 171, 172, 174, 175, 181, 182, 183, 184, 185, 186, 187, 191 and 179 of the Ordinances of the City of New Haven concerning Building Ordinances.

In compliance with sections 35 and 129 of the Charter of the City of New Haven, notice is hereby given of the adoption and approval of the following amendments to Building Ordinance of the City of New Haven:

Be it ordained by the Board of Aldermen of the City of New Haven:

That sections 51, 54, 55, 65, 67, 73, 83, 102, 103, 104, 106, 107, 108, 109, 111, 117, 119, 120, 122, 123, 127, 138, 153, 156, 158, 161, 162, 166, 167, 168, 169, 170, 171, 172, 174, 175, 181, 182, 183, 184, 185, 186, 187, 191, 179, of the Ordinances of the City of New Haven, revised to August 1, 1905, be amended as follows:

Sec. 51. Omit "except frame buildings costing less than $3,500.00" in third and fourth lines, so that said amended section shall read as follows:

Sec. 51. Drawings and Specifications.—Where an application is made for the erection or alteration of any building, or any part thereof, drawings and specifications sufficient to enable the Inspector to obtain full and complete information as to the extent and character of the work to be done shall be submitted with such application, and all such drawings and specifications shall be filed with the Inspector, and remain on file in his office three months after the completion or occupation of said building. Such drawings and specifications shall then be returned by the Inspector to the parties by whom they have been deposited, upon the demand of said person or persons. It shall not be obligatory upon the Inspector to retain such drawings or specifications in his custody for more than three months after the completion or occupation of said building.

Sec. 54. The first paragraph to read as follows, so that full section as amended shall read as follows:

No fee for building permit shall be less than $1.00. For building costing from

$1,000.00 to $2,000.00 the permit shall cost $2.00;

$2,000.00 to $3,000.00 the permit shall cost $3.00;

$3,000.00 to $4,000.00 the permit shall cost $4.00;

$4,000.00 to $5,000.00 the permit shall cost $5.00;

and so on, being at the rate of $1.00 per thousand or fraction thereof.

Permits for the obstruction of streets shall be paid for in proportion to the street frontage occupied, at the rate of $1.00 for the first month, $2.00 for the second month and $3.00 for the third month, and so on, increasing at the rate of $1.00 per month for each successive month for each fifty feet of frontage or fraction thereof so occupied.

Sec. 55. Fourteenth line to the end of section to read: "Concrete for foundations shall be made not poorer than one part of Portland cement, 2 1-2 parts of clean, sharp sand and 5 parts of clean broken stone, or one-half of the 5 parts may be clean gravel, and the other half clean broken stone, all carefully mixed." The stones not to be larger than will pass through a 2 in. ring in any direction, so that said section as amended shall read as follows:

Sec. 55. Character of Brick, Sand and Mortar.—All brick laid in non-freezing weather shall be well wet immediately before being laid. The brick used in all buildings shall be good, hard, well burnt brick. The sand used for mortar in all buildings shall be clean, sharp sand, and shall not be finer than the standard samples kept in the office of the Inspector of Buildings. Cement mortar shall be made of sand and cement in the proportion of not more than three parts of sand to one of cement, and shall be used immediately after being mixed. Lime mortar shall be made of not more than four parts of sand to one part of lime, and shall not be used until thoroughly slaked. Cement and lime mortar shall be made of one part of lime, one part of cement and three parts of sand to each.

Concrete for foundations shall be made not poorer than one part of Portland cement, 2 1-2 parts of clean, sharp sand and 5 parts of clean broken stone, or one-half of the five parts may be clean gravel, and the other half clean broken stone, all carefully mixed. The stones not to be larger than will pass through a 2 in. ring in any direction.

Add to end of section 63: "Laid up in lime and cement mortar," so that said section as amended shall read as follows:

Sec. 63. Foundation walls shall be construed to include all walls and piers built below the curb level or nearest tier of beams to the curb, to serve as supports for walls, piers, columns, girders, posts or beams. Foundation walls shall be built of stone or brick laid up in lime and cement mortar.

Sec. 65. Title to read "Construction of footing, underpinning," etc. Add the following to end of section: "Provided, however, that frame buildings three stories or less in height or brick buildings not over two stories in height may have the foundation walls started without footings if they do not exert a bearing pressure of over four tons per square foot on good sand or gravel. Underpinning of foundation walls may have footings of hard brick laid in Portland cement mortar," so that said section as amended shall read as follows:

Sec. 65. The footing or base course of foundation walls shall be of stone or concrete, or both, or of concrete and stepped-up brick work, of sufficient thickness and area to safely bear the weight to be imposed thereon; if the footing or base course be of concrete, the concrete shall not be less than twelve inches thick, if of stone, the stones shall not be less than two by three feet, and at least eight inches in thickness for walls, and at least twelve inches wider than the bottom width of said walls, and not less than ten inches in thickness if under piers, columns or posts, and at least twelve inches wider on all sides than the bottom width of said piers, columns or posts. All base stones shall be well bedded and laid crosswise, edge to edge. If stepped-up footings of brick are used in place of stone, above the concrete, the off-sets, if laid in single courses, shall each not exceed one and one-half inches, or if laid in double courses shall not exceed three inches, starting with the brickwork covering the entire width of the concrete, so as to properly distribute the load to be imposed thereon.

"Provided, however, that frame buildings three stories or less in height or brick buildings not over two stories in height may have the foundation walls started without footings if they do not exert a bearing pressure of over four tons per square foot on good sand or gravel. Underpinning of foundation walls may have footings of hard brick laid in Portland cement mortar."

Sec. 67. Add the following to the end of section: "All bearing piers shall have blue stone caps, the thickness of which shall be not less than one-fourth of the greatest horizontal dimension of said pier or piers, or of such other material and thickness of same as may be approved by the Inspector of Buildings," so that said section as amended shall read as follows:

Sec. 67. Use of Piers in Any Part of Structure.—All piers shall be built of stone or good, hard, well-burnt brick, laid in cement mortar. Every

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pier built of brick, containing less than nine superficial feet at the base, supporting any beam, girder, arch or column on which a wall rests, or lintel spanning an opening over ten feet and supporting a wall, shall at intervals of not over thirty inches apart in height have built into it a bond stone not less than four inches thick, or a cast iron plate of sufficient strength and the full size of the piers. Isolated brick piers shall not exceed in height eight times their least dimensions. Stone piers or posts for the support of posts or columns above shall not be used in the interior of any building. Where walls or piers are built of coursed stone, with dressed level beds and vertical joints, the Inspector of Buildings shall have the right to allow such walls or piers to be built of a less thickness than specified for brick work, but in no case shall said walls or piers be less than three-quarters of the thickness provided for brick work.

All bearing piers shall have blue stone caps the thickness of which shall be not less than one-fourth of the greatest horizontal dimension of said pier or piers, or of such other material and thickness of same as may be approved by the Inspector of Buildings.

Sec. 73. Add the word "only" to end of second line, so it will read: "The walls of all buildings which are to be used for residential purposes only;" and stables not over two stories high, omit the words "and also school buildings."

Also add to end of section 73, before the table, the following: "Provided, however, that 8 in. walls shall not be over 40 ft. in length," so that said section as amended shall read as follows:

Sec. 73. Thickness of Walls for Houses.—The walls of all buildings which are to be used for residential purposes only, and also stables not over two stories high, twenty-six feet or less in width between bearing walls, shall not be less in thickness than the number of inches given in the following table, provided, however, that 8 in. walls shall not be over 40 ft. in length:

Sec. 83. To be amended so that said section shall read as follows:

Outside, Party and Division Walls.

One story.............................
Two stories ....
Three stories.........................
Four stories ....
Five stories..........................
Six stories...........................
Seven stories.........................
Eight stories.........................
Nine stories..........................
Ten stories...........................

USE OF EXISTING WALLS.

Sec. 83. Walls heretofore built whose thickness is not in accordance with the Ordinance may be used, if in good condition, for the ordinary uses of party walls, provided the height be not increased. In case it is desired to increase the height of existing party or independent walls, which walls are less in thickness than required under this title, it can be done by either using a lining of brick work on the inside of walls, or building on top with iron or steel construction, as may be approved by the Inspector of Buildings; provided, however, that the extra weight of increased walls be supported entirely on iron or steel construction carried down to walls of thickness required by ordinances, and the weight distributed on the walls to conform to sections 102 and 103 of this ordinance; provided, however, that no wall is less than 12 inches thick. Said steel work to be so designed as to give sufficient stiffness to walls not of the required thickness, and to be fire-proofed in accordance with section 105. If brick lining is used, the same shall form a combined thickness with the old wall of not less than four inches more than the thickness required for the new wall, corresponding with the total weight of the wall when so increased in height. The said lining shall be supported on proper foundations and carried up to such height as the Inspector of Buildings may require. No lining shall be less than eight inches in thickness, and all lining shall be laid up in Portland cement mortar and thoroughly anchored to the old brick walls with suitable wrought iron anchors, placed not over two feet apart and properly fastened into the old walls in rows alternating vertically and horizontally with each other, the old walls being first cleaned of plaster or other coatings where any lining is to be built against the same.

Sec. 88. Add to end of section the following: "All bearing partition studs to be bridged through the center of height of each story with suitable blocking of wood," so that said section as amended shall read as follows:

Sec. 88. Partition Walls.—Eight-inch brick and six-inch and four-inch hollow tile partition walls of hard-burnt clay or porous terra cotta may be built, not exceeding in their vertical portion a measurement of fifty, thirty-six and twenty-four feet, respectively, and in their horizontal measurement a length not exceeding seventy-five feet, unless strengthened by proper cross walls, piers or buttresses bonded into same. All such walls shall be carried on proper foundations or on iron girders, or on iron girders and columns or piers of masonry. One line of fore and aft partitions in the cellar or lowest story, supporting stud partitions above, in all buildings over eighteen feet between bearing walls in the cellar or lowest story, hereafter erected, shall be constructed of brick not less than eight inches thick, or piers of brick with openings arched over below the underside of the first tier of beams, or piers of brick, or iron columns, with wooden girders when the first tier of floor beams are of wood, or iron or steel girders when the floor beams are of iron or steel, or rolled iron or steel beams of sufficient strength to span the entire width for the first tier of beams may be used, and the stairs shall be inclosed by a suitable brick wall carried up to the top of the tier of beams nearest the curb line.

Fore and aft stud partitions and such other main stud partitions as may be required by the Inspector of Buildings, which may be placed in the cellar or lowest story of any building, shall have good solid stone or brick foundation walls under the same, which shall be built up to the top of the floor beams or sleepers, and the sills of said partitions shall be of yellow pine or other suitable hard wood; but if the walls are built five inches higher of brick than top of the floor beams or sleepers, any wooden sill may be used on which the studs shall be set. Fore and aft stud partitions that rest directly over each other shall run through the wooden floor beams and rest on the plate of the partition below. All girders supporting the first tier of wooden beams in buildings shall be supported by brick piers, or iron, locust or other suitable hard wood posts of sufficient strength on proper foundations. "All bearing partition studs to be bridged through the center of height of each story with suitable blocking of wood."

Sec. 102. The last three lines to section to read "eleven and one-half tons per superficial foot, when good lime and Portland cement mortar mixed is used, and fifteen tons per superficial foot when good Portlan cement mortar is used," so that sai

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section as amended shall read as follows:

Sec. 102. Weight of Building Material.—In computing the weight of walls, a cubic foot of brick work shall be deemed to weigh one hundred and fifteen pounds. Sandstone, white marble, granite and other kinds of building stone shall be deemed to weigh one hundred and sixty pounds per cubic foot. The safe-bearing load to apply to good brick work shall be taken at eight tons per superficial foot, when good lime mortar is used; eleven and one-half tons per superficial foot, when good lime and Portland cement mortar mixed is used; and fifteen tons per superficial foot, when good Portland cement mortar is used.

Sec. 103. The last paragraph to read as follows instead of as in the present ordinance: "The safe-bearing load to be applied to concrete, as described in section 55, is to be taken at fifteen tons per square foot," so that section as amended shall read as follows:

Sec. 103. Safe-Bearing Loads for Earth and Concrete.—Good, solid, natural earth shall be deemed to safely sustain a load of four tons to the superficial foot, or as otherwise determined by the Inspector of Buildings, and the width of the footing courses shall be at least sufficient to meet this requirement.

"The safe-bearing load to be applied to concrete, as described in section 55, is to be taken at fifteen tons per square foot."

Sec. 104. Insert the following in the center of the ninth line: "The above mentioned heights to be measured from the lowest point at the grade line of the building." Change seventh line to read 55 ft. instead of 45 ft., so that said section as amended shall read as follows:

Sec. 104. Building to be Fireproof.—Every building hereafter erected or altered to be used as a hotel or apartment house, the height of which exceeds sixty feet; and every building hereafter erected or altered to be used as a schoolhouse, place of instruction, hospital, asylum, or institution for the treatment of persons, the height of which exceeds fifty-five feet; and every other building the height of which exceeds seventy-five feet, except grain elevators and church spires, shall be built fireproof. The above mentioned heights to be measured from the lowest point at the grade line of the building. Said fireproof construction to consist of noncombustible materials throughout, except that wood may be used for under and surface floors, window and door frames, sashes, doors, standing finish such as architraves or trim, handrails for stairs, necessary sleepers bedded in concrete or other approved noncombustible material, and for isolated furring blocks bedded in the plaster. There shall be no air space behind or surrounding any wood.

	Basem't											
	Brick	Stone	1st story	2nd story	3rd story	4th story	5th story	6th story	7th story	8th story	9th story	10th story
......	16	12	8									
......	20	16	12	8								
......	20	16	12	12	8							
......	24	20	16	12	12	12						
......	24	20	16	16	12	12	12					
......	24	20	16	16	16	12	12	12				
......	28	24	20	16	16	16	12	12	12			
......	28	24	20	20	16	16	16	12	12	12		
......	28	24	20	20	20	16	16	16	12	12	12	
......	32	28	24	20	20	20	16	16	16	12	12	12

Sec. 106. Insert the word "medium" before the word "steel" in the third line, so that it will read as follows: "All girders, beams, corbels, brackets and trusses if made of "medium steel," etc., so that said section as amended shall read as follows:

Sec. 106. Iron and Steel Construction—Fiber Stress for Steel and Iron.—All girders, beams, corbels, brackets and trusses, if made of medium steel, shall be so proportioned that the maximum fiber stress will not exceed 16,000 pounds per square inch; or if made of rolled or wrought iron, the maximum fiber stress shall not exceed 12,000 pounds per square inch.

Iron or steel floor beams shall be so arranged as to spacing and length of beams that the load to be supported by them, together with the weights of the materials used in the construction of the said floors, shall not cause a deflection of the said beams of more than one-thirtieth of an inch per lineal foot of span; and they shall be tied together at intervals of not more than eight times the depth of the beam.

Amend Section 107.

MAXIMUM STRESSES IN RIVETED PLATE GIRDERS.

The maximum stresses in riveted plate girders shall not exceed the following, namely: "Stresses in top and bottom flanges 16,000 pounds per square inch for medium steel, and 12,000 pounds per square inch for wrought iron, net area in each case. Shearing stress in web 10,000 pounds per square inch for medium steel, and 6,000 pounds per square inch for wrought iron, but no web plate shall be less than three-eighths of an inch in thickness."

Insert the word "medium" before the word "steel" in the fourth line. Insert the word "wrought" before the word "iron" in the fifth line. In like manner wherever the word "steel" is used in this section it will be modified by the word "medium," and wherever the word "iron" is used in this section it will be modified by the word "wrought." Wherever the word "steel" is used for rivets it shall be modified by the word "rivet." The ninth line, second and third words, shall read "or flange" instead of "on flanges." The remainder of section to be as at present.

Amend section 107 so that said section as amended shall read as follows:

Sec. 107. Maximum Stresses in Riveted Plate Girders.—The maximum stresses in riveted plate girders shall not exceed the following, namely: Stresses in top and bottom flanges 14,000 pounds per square inch for medium steel, and 12,000 pounds per square inch for wrought iron, net area in each case; shearing stress in web 10,000 pounds per square inch for medium steel, and 6,000 pounds per square inch for wrought iron; but no web plate shall be less than three-eighths of an inch in thickness. Riveted plate girders shall be proportioned upon the supposition that the bending on flange strains are resisted entirely by the upper and lower flanges, and that the shearing strains are resisted entirely by the web plate. No part of the web shall be estimated as flange area. The distance between the centers of gravity of the flange areas shall be considered as the effective depth of the girder. Rivets in plate girders shall not be less than three-quarters of an inch in diameter.

The maximum stress per square inch of rivet area (single shear) shall not exceed the following for all kinds of riveted work, namely: For shop-driven rivets 10,000 pounds for medium steel and 7,500 pounds for wrought iron, and for field driven rivets 8,000 pounds for medium steel and 6,000 pounds for wrought iron. The maximum direct bearing for rivets and pins shall not exceed 20,000 pounds per square inch for medium steel and 15,000 pounds per square inch for wrought iron.

Sec. 108. Insert the word "medium" before the words "rolled steel" in the third and fourth lines, so that said section as amended shall read as follows.

Sec. 108. Skeleton Construction. Where columns are used to support iron or steel girders carrying inclosure walls, the said columns shall be of cast iron, wrought iron or medium rolled steel and on their

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exposed outer and inner surfaces be constructed to resist fire by having a casing of brickwork not less than eight inches in thickness on the outer surfaces, nor less than four inches in thickness on the inner surface and all bonded into the brick work of the inclosure walls. The exposed sides of the iron or steel girders shall be similarly covered in with brickwork not less than four inches in thickness on the outer surfaces and tied and bonded, but the extreme outer edge of the flanges of beams or plates or angles connected to the beams, may project to within two inches of the outside surface of the brick casing. The inside surfaces of girders may be similarly covered with brickwork, or if projecting inside of the wall, they shall be protected by terra cotta, concrete or other fireproof material. Girders for the support of the inclosure walls shall be placed at the floor line of each story.

Sec. 109. To be amended so that said section shall read as follows:

STEEL AND WROUGHT IRON COLUMNS.

No part of a steel or wrought iron column shall be less than one-quarter of an inch thick. No wrought iron or rolled steel column shall have an unsupported length of more than 40 times its least lateral dimension or diameter, and not more than 120 times its least radius of gyration, except in such cases as the Inspector of Buildings may specially allow a greater unsupported length.

"Stay plates are to have not less than four rivets and are to be spaced so that the ratio of length to the thickness does not exceed 40. The distance between the nearest rivets of two-story plates shall in this case be considered as length. Steel and wrought iron columns shall be made in one, two or three-story lengths and the materials shall be rolled in one length, wherever practicable to avoid intermediate splices. Where any part of the section of a column projects beyond that of the column below, the difference shall be made up by filling plates secured to column by the proper number of rivets. Shoes of iron or steel, as described for cast iron columns, or built shoes of plates and shapes may be used, complying with the same requirements.

Sec. 111 to be amended so that said section shall read as follows: Double Columns. In all buildings hereafter erected or altered, where any iron or steel column or columns are used to support a wall or part thereof whether the same be an exterior or an interior wall and columns located below the level of the sidewalk which are used to support exterior walls or arches over vaults, the said column or columns shall be either constructed double, that is, an outer and an inner column, the inner column alone to be of sufficient strength to sustain safely the weight to be imposed thereon, and the outer columns shall be one inch shorter than the inner columns, or such other iron or steel column of sufficient strength. "And together with any steel or iron beams or other supports connected therewith to be protected by not less than two inches of fireproof material securely applied except for columns supporting walls on street fronts."

Sec. 117 and 119 to be amended so that said sections as amended shall read as follows:

TEMPLATES.

Under the ends of steel beams and girders where they rest on the walls or piers or masonry, either iron, steel or stone templates shall be used of such dimensions as to bring no greater pressure upon the brick work than allowed by section 102 of this ordinance.

When iron or steel floor beams, not exceeding six inches in depth, are placed not more than 20 inches on centers, no templates are required. If stone templates are used they shall either be of cut granite, East Haven stone or blue stone blocks at least eight inches thick. In case the opening is less than 12 feet, stone blocks may be five inches in thickness or cast iron, steel or wrought iron plates of equal strength by the full size of the bearings may be used, provided in all cases, the safe loads do not exceed those fixed by section 102 of this ordinance.

Sec. 120. The eighth word from the end of this section to read "angles" instead of "ankles" so that said section shall read as follows:

Sec. 120. Framing and Connecting Structural Work. All iron or steel trimmer beams, headers and tail beam shall be suitably framed and connected together, and the iron or steel girders, columns, beams, trusses and all other iron work of all floors and roofs shall be strapped, bolted, anchored and connected together and to the walls.

All beams framed into and supported by other beams or girders shall be connected thereto by angles or knees of a proper size and thickness and have sufficient bolts or rivets in both legs of each connecting angle to transmit the entire weight or load coming on the beam to the supporting beam or girder. In no case shall the shearing value of the bolts or rivets or the bearing value of the connection angles provided for in this ordinance be exceeded.

Sec. 122. The third word in the second line to read "effected" instead of "affected." The word "steel" in the sixth line from the end of this section to be modified by the word "medium" so that said section shall read as follows:

Sec. 122. Bolting of Structural Steel and Wrought-iron Work. Where riveting is not made mandatory connections may be effected by bolts. These bolts shall be of wrought-iron or mild steel, and they shall have U. S. standard threads. The threads shall be full and clean, the nut shall be truly concentric with the bolt, and the thread be of sufficient length to allow the nut to be screwed up tightly. When bolts go through bevel flanges, bevel washers to match shall be used so that head and nut of bolt are parallel. When bolts are used for suspenders, the working stresses shall be reduced for wrought-iron to 10,000 pounds and for medium steel to 14,000 pounds per square inch of net area, and the load shall be transmitted into the head or nut by strong washers distributing the pressure evenly over the entire surface of the same. Turned bolts in reamed holes shall be deemed a substitute for field rivets.

Sec. 123. Last sentence to read as follows: "The compression and tension stresses shall not exceed 16,000 pounds for medium iron and 12,000 pounds for wrought iron per square inch of net area in any member," so that said section as amended shall read as follows:

Sec. 123. Steel and Wrought-iron Trusses. Trusses shall be of such design that the stresses in each member can be calculated. All trusses shall be held rigidly in position by efficient systems of lateral and sway bracing, struts shall be spaced so that the maximum limit of length shall not be greater than 160 times the least radius of gyration. Any member of a truss subjected to transverse stress, in adition to direct tension or compression, shall have the stresses causing such strain added to the direct stresses coming on the member.

"The compression and tension stresses shall not exceed 16,000 pounds for medium iron and 12,000 pounds for wrought iron per square inch of net area in any member."

Sec. 127. The first sentence to read as follows: "All structural metal work shall be cleaned of all scale, dirt and rust and to be thoroughly coated with one coat of paint of kind approved by the Inspector of Buildings" so that said section as amended shall read as follows:

Sec. 127. Painting of structural metal work. All structural metal work shall be cleaned of all scale, dirt and rust, and be thoroughly coated with one coat of paint of kind approved by the Inspector of Buildings.

Cast-iron columns shall not be painted until after inspection by the Inspector of Buildings. Where surfaces in riveted work come in contract, they shall be painted before assembling. After erection all work shall be painted at least one additional coat. All iron or steel used under water shall be inclosed with concrete to exclude the air and water to the satisfaction of the Inspector of Buildings.

Sec. 138. The fifth word in the third line to read "16" inches instead of "18" inches, so that said section as amended shall read as follows:

Sec. 138. Walls to separate stage and auditorium. The stage shall be separated from the auditorium by a brick wall not less than 16 inches thick, or its equivalent, the entire width of the building and topped out at least four feet above the roof over the auditorium. There shall be no openings in this wall except the curtain opening, and not more than two others, to be located at the level or below the stage. These latter openings shall not exceed 21 superficial feet each, with iron or tin covered wood and self-closing doors securely hung to rebates in the brickwork, so as to be opened from either side at all times. The wall over the curtain opening shall be carried by iron girders or by a brick arch of sufficient capacity and secured at each

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side of opening to prevent motion by thrust of arch.

Sec. 153. Add the following to the end of second paragraph: "In the cases of flues starting from the basement or cellar, the flue lining will be started not more than two feet above said cellar or basement floor," so that said section as amended shall read as follows:

Sec. 153. Chimneys. All chimneys shall be built of brick, stone or other incombustible materials.

Chimneys in all buildings shall have walls at least eight inches thick if of brick, unless terra cotta or fire clay flue linings are used, in which case four inches of brick work may be omitted. Chimneys other than those built of brick shall have walls at least eight inches thick and shall have an additional lining of four inches of brick work or a terra cotta or fire-clay lining. Said flue lining shall start from the bottom of the flue, or from the throat of the fireplace, if the flue starts from the latter, and shall be carried up continuously to the extreme height of the flue. The joints of all such linings shall be made to fit close together and the linings shall be built in as the flue or flues are carried up.

"In case of flues starting from the basement or cellar the flue lining will be started not more than two feet above said cellar or basement floor."

Every chimney hereafter built shall have an opening at or near the bottom sufficient to admit the cleaning of the same.

Sec. 156. To be amended so that said section shall read as follows:

FIRE-PLACES.

All fire-places shall have trimmer arches to support hearths and said arches shall be at least 16 inches in width, measured from the face of the chimney breast and the full width of the fire-place breast. They shall be constructed of brick, stone, burnt clay or formed with blue stone flags. Wooden centering under trimmer arches shall be removed before plastering the ceilings underneath. The fire-backs of all fire-places hereafter erected shall not be less than eight inches in thickness of solid masonry.

Where gas fire-places are to be used the fire-place openings are to be lined on the sides, back and top with one thickness of brick started on top of a stone flag supported on the floor timbers. From each fire-place to be a four-inch metal vent pipe extended up in partitions to attic and connected with smoke or brick vent flue.

If portable fire-places are used they will be set and protected as approved by Inspector of Buildings.

Sec. 158. The first three words to read "No smoke pipe."

Add the following to end of first paragraph. "The covering of smoke pipe with fireproof material may be substituted in place of metal shield provided it meets with the approval of the Inspector of Buildings," so that said section as amended shall read as follows:

Sec. 158. Stovepipes to be guarded. No smokepipe in any building with wooden or combustible floors, ceilings or partitions shall enter any flue unless the said pipe shall be at least 12 inches from either of the said floors, ceilings or partitions, unless the same is properly protected by a metal shield in which case the distance shall not be less than six inches.

"The covering of smokepipe with fireproof material may be substituted in place of metal shield provided it meets with the approval of the Inspector of Buildings.

In all cases where stovepipes pass through stud or wooden partitions of any kind, they shall be guarded by either a double collar of metal with at least three inches of air space and holes for ventilation or by a soap-stone or burnt clay ring not less than four inches in thickness and extending through the partition. Where laundry stoves; hot water, steam, hot-air or other furnaces are used in any building the smopepipe leading therefrom must be kept not less than 18 inches from the floor beams or ceiling unless the same is properly protected by a metal shield, when the distance shall not be less than nine inches. In all cases where such pipe passes through a wood or stud partition it shall be protected by a thimble with eight inches of brick work around it, or a double collar of metal with at least six inches air space and holes for ventilation.

Sec. 161 to be amended so that section shall read as follows:

STEAM PIPES.

No steam "or hot water pipes" shall be placed within two inches of any timber, wood work, etc., unless the timber or wood work is protected by a metal shield, then the distance shall not be less than one inch. All steam pipes passing through floors and ceilings or lath and plastered partitions shall be protected by a metal tube one inch larger in diameter than the pipe, and the space shall be filled in with mineral wool, asbestos or other incombustible material.

Sec. 162. The last part of the sixth line to read, or if a single pipe is used it shall be surrounded on all sides with sheet tin or galvanized sheet iron and the outside faces covered with brick, tin, iron lath or slate and there shall be at least one-half of an inch air space all around the said heating pipe. Horizontal hot air pipes in basements, cellars or other similar places shall be kept six inches below the floor beams or ceiling. If the floor beams or ceilings are plastered and protected by a metal shield, then the distance shall not be less than three inches. In cases where hot air pipes pass through a wood or stud partition, they shall be guarded by a double collar of metal with one inch air space, and holes for ventilation. The 12th word from the end of section to read "heat flue" instead of "smoke flue." The rest of the section to stand as at present, so that said section shall read as follows:

Sec. 162. Hot-air Pipes. Hot-air pipes in stud partitions and horizontal pipes in floors shall be built in the following manner: The pipes shall be double, that is, two pipes, one inside the other at least one-half inch apart, and there shall be a space of at least three inches between the pipe and stud or any other timber on each side.

Or if a single pipe is used it shall be surrounded on all sides with sheet tin or galvanized sheet iron, and the outside faces covered with brick, tin, iron lath or slate, and there shall be at least one-half of an inch air space all around the said heating pipe. Horizontal hot-air pipes in basements, cellars or other similar places shall be kept six inches below the floor beams or ceiling. If the floor beams or ceilings are plastered and protected by a metal shield, then the distance shall not be less than three inches. In cases where hot-air pipes pass through a wood or stud partition, they shall be guarded by a double collar of metal with one inch air space and holes for ventilation.

Or they shall be surrounded by brick work at least four inches in thickness. Where the air conveyed through pipes is heated in an ordinary hot-air furnace, or in any other apparatus by direct contact of the air with the firebox, the material used for these double pipes and register boxes shall be bright tin. Where the air is heated by hot water or steam pipes or indirect heating stacks any other sheet metal may be used for the pipes, and the use of double pipes is not obligatory.

All hot-air flues and shafts in brick or stone walls shall have the walls of the flues or shafts at least eight inches thick unless lined with tin, galvanized sheet iron or terra cotta or fire-clay flue linings, in which case four inches of brick work may be omitted. No wooden casings, furring or lath shall be placed against or cover any heat flue or metal pipe used to convey hot-air or steam.

Sec. 163. Sections 166, 167, 168, 169, 170, 171, all to be included under one section 166 as follows, so that said section as amended shall read as follows:

ELEVATORS.

Sec. 166.—In any building in which an elevator is to be installed to run through more than two stories, the same will be enclosed with brick walls or other fireproof materials as hereafter designated, or else provided with fireproof doors, the openings thereof through and upon each floor of said building shall be provided with and protected by a guard or gate and with good trap doors with which to close the same. Such guards, gates, and trap doors shall be kept closed at all times except when in actual use. In all buildings except manufactories hereafter erected, the roof immediately over the elevator shall be covered with a skylight of suitable size. All elevators hereafter placed in any building except manufactories or storehouses shall be enclosed in suitable walls of brick or frame work of iron and burnt clay filling or other fireproof materials. Said walls shall extend through and above the roof of the building at least three feet, and all openings into the same shall be provided with fireproof doors

as approved by the Inspector of Buildings. Elevators may be placed in the well holes of stairs without such brick or fireproof enclosures where the stairs are enclosed with brick or other fireproof walls, but the framework or enclosure of such elevators shall be of iron or other fireproof materials. The roofs over all enclosed elevators shall be made of fireproof materials with a skylight of at least three-fourths of the area of the shaft made of glass set in an iron frame. Immediately under all overhead machinery at top of elevator shaft, there shall be placed a substantial grating or screen of iron of sufficient strength to protect from falling materials. Every elevator shall be provided with a sufficient arrangement to prevent the falling of the car or platform in case of accident. Any part of any elevator not enclosed in a shaft except in manufactories and storehouses, shall be protected by an iron screen or grille. Freight elevators shall have a notice posted conspicuously thereon as follows: "Persons riding on this elevator do so at their own risk." All persons placed in charge of running any elevator shall be steady, reliable persons with suitable qualifications to do such work. No elevator shall be used until it has been inspected, and a permit has been granted by the Inspector, and when any repairs are found necessary upon inspection, they shall be made without delay, and the use of the elevator shall cease, and it shall not be again used until a new inspection, unless a certificate signed by an elevator builder that the elevator is safe, has been furnished and posted at the entrance.

Sec. 172 to be amended so that said section shall read as follows:

CORNICES.

Sec. 172. Every cornice within the fire limits except on private residences not more than 2 1-2 stories high, and also excepting as designated in section 181, shall be of metal or other non-combustible material. Main cornices of all brick buildings over 37 ft. high outside of the fire district shall be of metal or other non-combustible materials.

All fireproof cornices shall be well secured to the walls with iron anchors, independent of any woodwork. Where a wall is finished with a cornice of stone, terra cotta or similar material, the greatest weight of the material of such cornice shall be on the inside of the face of the wall unless supported by iron construction, so that the cornice shall firmly balance upon the wall. In all cases the walls behind the cornices shall be carried up to the planking of the roof, and where the cornice projects above the roof, the walls shall be carried up above the planking of the cornice and be coped. All exterior wooden cornices that may now be or that may hereafter become unsafe or rotten shall be taken down, and if replaced shall be constructed in accordance as above provided. All exterior cornices of wood or gutters that may hereafter be damaged by fire to the extent of one-third shall be taken down, and if replaced shall be constructed according to this section, but if not damaged to the extent of one-third, the same may be repaired with the same kind of material of which they were originally constructed.

Sec. 174. To commence as follows:

ROOF OF WOODEN BUILDING.

No wooden building within the fire limits which shall require roofing shall be roofed with any other roofing or covering except as provided in this chapter.

Omit the sixth and seventh lines and the first three words in the eighth line.

On page 214 omit the third, fourth, fifth and sixth lines. The second word on page 214 to read "nine" instead of "twelve," so that said section as amended shall read as follows:

Sec. 174.—Roof of Wooden Building.—No wooden building within the fire limits which shall require roofing shall be roofed with any other roofing or covering, except as provided in this chapter. All buildings shall have scuttles or bulkheads, covered with fireproof material, with ladder or stairs leading thereto. No scuttle shall be less in size than two by three feet. All skylights having a superficial area of more than nine square feet, placed in any building, shall have the sashes and frames thereof constructed of iron and glass. All buildings shall be kept provided with proper metallic leaders for conducting water from the roof in such a manner as shall protect the walls and foundations of said buildings from injury. In no case shall the water from the said leaders be allowed to flow upon the sidewalk, but the same shall be conducted by pipe or pipes to the sewer. If there be no sewer in the street upon which such buildings front, then the water shall be conducted by proper pipe or pipes below the surface of the sidewalk to the street gutter.

Sec. 175. To read as follows:

ROOFS OF BUILDINGS NOT WOODEN.

The planking and sheathing of the roof of every building hereafter erected or built inside the fire limits shall in no case extend across the party wall thereof. The roof of every such building and the tops and sides of every dormer or window thereon shall be covered and roofed with slate, tin, copper, iron, gravel, or such other quality of fireproof roofing as the Inspector of Buildings under his certificate may authorize.

Sec. 179. This section to be struck out.

Sec. 181 to be amended so that said section shall read as follows:

VARIOUS STRUCTURES WITHIN THE FIRE LIMITS.

The following wooden and temporary structures shall be allowed within the fire limits:

Any wooden addition may be built to any private house, provided such addition does not exceed one hundred square feet in superficial area and does not extend more than three feet above the second story ceiling line.

Sec. 181. Within the fire district as they now are or may hereafter be established by the board of aldermen of said city no frame or wooden building shall be built, nor shall any frame structure, stationary or on wheels to be used for business purposes be permitted except as in this chapter authorized.

Temporary one-story frame buildings may be erected for the use of builders within the limits of lots whereon buildings are in the course of erection, or on adjoining vacant lots, upon permits issued by the Inspector of Buildings. Fences of wood shall not be erected over eight feet high. Signs of wood shall not be erected over two feet high on any building. Sheds of wood not over fifteen feet high, open on at least one side, with sides and roof thereof covered with fireproof material, may also be built, but no fence shall be used as the back or side of any such shed, provided that sheds for the protection of lumber may be erected to greater height under such conditions as may be designated by the Inspector of Buildings.

Exterior wood, coal and storage houses not exceeding one hundred and fifty square feet in superficial area and eight feet high, may be built of wood, but for the exterior wood work thereof must be covered with metal, and the roof to be covered with metal, gravel or slate, or other materials approved by the Building Inspector. Sheds erected on piers, wharves or bulkheads on a water front not exceeding twenty-five feet in height, shall be covered on the outside with slate, tile, metal, or other incombustible material. Coal elevators or pockets for the storage of coal, and trestle work in connection therewith shall be in mode of construction and location as may be approved by the Inspector of Buildings.

Grain elevators may be constructed of wood, but all the external wood work shall be covered with incombustible material, and when such buildings exceed sixty feet in height, the two lower stories shall be of brick.

Lumber or combustible material shall not be piled at any lesser distance from the nearest dwelling house than double the height of such pile.

Any bay or oriel window that does not extend more than three feet above the second story ceiling line of any dwelling house and also any piazza or balcony not over eight feet wide and not extending more than three feet above the second story ceiling line of any dwelling house may be built of wood.

Sec. 182. Page 218 after the fifth word, sixth line, insert the following: "Top or sides." In the eighth line, fifth word to read "beams." The nineteenth line, page 218, to read "anchors shall hook over the joist, and the joists to be steadied with scantlings not less than two inches by four inches cut in between the same." In the twenty-fifth line, second word, change "or" to "and." The twenty-ninth line to read "shall each have cap and base plates of iron or steel of suitable thickness," etc. In the thirty-third line, after the eighth word insert "or steel."

Sec. 182. Use of Wooden Beams.—All wooden beams or other timbers in the party wall of every building built of stone, brick or iron, shall be separated from the beam or timber entering in the opposite side of the wall by at least four inches of solid mason work. No wooden floor beams nor wooden roof beams used in any building, exceeding three stories in height, hereafter erected, shall be of less thickness than three inches. All wooden trimmer and header beams shall not be less than one inch thicker than the floor or roof beams on the same tier, where the header is four feet or less in length; and where the header is four feet and not less than fifteen feet in length, the trimmer and header beams shall be at least double the thickness of the floor or roof beams, or shall each be made of two beams forming such thickness properly spiked or bolted together, and when the header is more than fifteen feet in length, wrought iron flitch plates of proper thickness and depth shall be placed between two wooden beams suitably bolted together to and through the iron plates in constructing the trimmer and header beams; or wrought iron or rolled steel beams of sufficient strength may be used. Every wooden beam, except header and tail beams, shall rest at one end four inches in the wall, or upon a girder as authorized by this title. All wooden floor and wooden roof beams shall be properly bridged with cross-bridging, and the distance between bridging or between bridging and walls shall not exceed eight feet. Every wooden header or trimmer more than four feet long, used in any building, shall be hung in stirrup-irons of suitable thickness for the size of the timbers or joist hangers approved by the Inspector of Buildings. No timber shall be used in any wall of any building where stone, brick or iron is commonly used, except lintels, as hereinbefore provided. The ends of all wooden floor and roof beams, where they rest on brick walls, shall be cut to a bevel of three inches on their depth, so that in case of fire they may fall without injury to walls. All wooden beams shall be trimmed away from the flues, whether the same be a smoke, air, or any other flue, the trimmer beam to be eight inches from the inside face of the flue in a straight way and four inches from the outside of a chimney breast, and the header two inches from the outside face of the flue.

Each tier of beams shall be anchored to the side, front, rear or party walls at intervals of not more than six feet apart, with good, strong wrought iron anchors of not less than one and a half inches by three-eighths of an inch in size, well fastened to the top or sides of the beams by two or more nails made of wrought iron at least one-fourth of an inch in diameter. The ends of beams resting upon girders shall be butted together, end to end, and strapped by wrought iron straps of the same size and distance apart, and in the same beams as the wall anchors, and shall be fastened in the same manner as said wall anchors, or they may lap each other at least 12 inches and be well spiked or bolted together where lapped. Where the beams are supported by girders, the girders shall be anchored to the walls and fastened to each other by suitable iron straps. Every pier and wall, front or rear, shall be well anchored to the beams of each story, with the same size anchors as are required for side walls, which anchors shall hook over the fourth joist, and the joists to be steadied with scantlings not less than two inches by four inches cut in between the same. Each tier of beams, front and rear, opposite each tier, shall have hard wood or Georgia pine anchor strips dovetailed into the beams diagonally, which strips shall cover at least four beams, and be one inch thick and four inches wide, but no such anchor strips shall be let in within four feet of the center line of the beams; and wooden strips shall be nailed on the top of the beams and kept in place until the floors are being laid. Wooden columns supporting wooden girders and wooden floor beams and wooden roof beams, in all buildings more than two stories in height, shall each have cap and base plates of iron or steel of suitable thickness, and of proper size and shape. Said wooden columns, when placed one over another, shall not bear upon any wooden girder, but shall bear directly upon each other, or shall have between the iron or steel plates suitable iron dowels passing through the girders. All timbers and wood beams used in any building shall be of good, sound material, free from rot, large and loose knots, shakes, or any imperfection whereby the strength may be impaired, and be of such size and dimensions as the purposes for which the building is intended require.

Sec. 183. The last sentence to read "No frame or wooden dwelling house hereafter erected shall exceed three stories or 37 feet in height," so that said section as amended shall read as follows:

Sec. 183. Wooden buildings outside fire district. Outside of the fire district before prescribed herein, buildings of frame or wood may be erected, but no frame building, to be occupied or used as a stable, workshop or manufactory, shall be built more than two stories or 25 feet in height, nor shall any wooden tower or spire be built or rebuilt to a greater height than 60 feet.

"No frame or wooden dwelling house hereafter erected shall exceed three stories or 37 feet in height."

Sec. 184. Fourteenth line to read "all 'underpinning' walls of frame or wooden buildings," etc., so that said section as amended shall read as follows:

Sec. 184. General Restrictions for Wooden Buildings. When two or more houses, mentioned in the preceding section, are built contiguous, the party or division studding shall be not less than four inches thick and filled in solidly with brickwork, or the division walls may be of brick not less than eight inches above the foundation wall; and ends of the floor beams shall be so separated that four inches of brick will be between the beams where they rest on said walls. All frame o wooden buildings exceeding a height of 15 feet shall be built with sills, posts, studs, plates and rafters, all of suitable size and properly framed and braced, and with suitable studs set at proper distance apart. The floor beams shall not b less than two inches in thickness. The covering of roofs may be of shingle. All underpinning walls of frame o wooden buildings shall be not less than eight inches thick if of brick, or of greater thickness if of stone. Whe any said wall is eight feet or mor above the surface of the ground, the the wall shall be not less than 12 inche thick if of brick, or not less than 1 inches thick, if of stone. Frame buildings sheathed with boards and partiall or entirely covered with four inches o brickwork shall be deemed to be fram buildings.

Secs. 185, 186, 187.

To remain as at present and a ne