Repealed by Ord. No. 2603 Vol 7 P. 736

ORDINANCE NO. 2351.

An Ordinance Regulating the Erection, Enlargement, Raising, Alteration, Repairs, Additions, Construction and Use of Buildings, and providing for requirements in regard thereto, and providing a penalty for violation of said Ordinance.

Be it Ordained by the Council of the City of Oakland, as follows:

SECTION 1.

Every building hereafter erected, altered, enlarged or built upon, shall be erected, altered, enlarged or built upon, in accordance with the provisions of this Ordinance.

SECTION 2.

No building already erected, in the City of Oakland, shall be enlarged, raised, altered or built upon, otherwise than in accordance with the provisions of this Ordinance.

SECTION 3.

"Altertaions" means any change or addition "Repairs" means the reconstruction or renewal of any existing part of a building, or of its fixtures or appurtenances, by which its strength or the fire risk thereof, is not modified.

"Party Wall" means a wall that separates two or more buildings, and is used or is to be used jointly by said buildings.

"Partition wall" means any interior wall in a building.

"Bearing wall" means a wall inside of a building which is to support the different floors, at places where the joists are not of sufficient depth to sustain the load imposed upon them.

"Exterior wall" means every outer wall or vertical inclosure of a building other than a party wall.

"Thickness of a wall" means the minimum thickness of such wall between floors, or between floor and ceiling or roof.

"Cellar or basement" means a lower story, any part of which is below the level of the street, or streets, on which it faces, or of the general level of the ground, for more than one-half the height of such lower story.

"Story" means (for the purpose of calculating the thickness of foundation and size of studding) any part of a building of which three-quarters or more is above the level of the street or streets on which it faces, or the general level of the ground, or which exceeds 7 feet 6 inches in height. An attic in a dwelling house shall be regarded as a "story" when the sidewalks thereof exceed in height four feet six inches measured from foot of rafters to top of floor joists of said attic.

SECTION 4.

For the purpose of this Ordinance, the greatest linear dimension of any building shall be its length, and the next greatest linear dimension its width. The height shall be measured from the curb line opposite the center of the principal front for all buildings except those on a street corner.

For buildings erected on a street corner the measurement shall be taken from the curb line opposite the center of either front.

When the walls of a structure do not adjoin a street, the average level for the ground adjoining the walls may be taken instead of the curb level for the height of such structure.

And heights shall be measured from above lines to the under side of ceiling joists for flat roof, and one-half the height of roof for a pitch roof.

Any roof or portion of a roof above the extreme height allowed by this Ordinance must not have a slope with the horizon of more than forty-five degrees.

SECTION 5.

A "dwelling" is every building which shall be intended or designed for, or used as, the home or residence of not more than two separate and distinct families or households, and in which not more than fifteen rooms shall be used for the accommodation of lodgers and no part of which structure is used as a store or for any buisiness purpose. Two or more such dwellings may be connected on each story when used for boarding purposes, provided the halls and stairs of each house shall be left unaltered, and kept open and in use as such.

SECTION 6.

An "Apartment house" is a building containing separate apartments, with self contained conveniences for three or more families, having a street entrance common to all.

SECTION 7.

A "tenement house" is a building similar to an apartment house, except that the tenements of which it is composed have no self-contained conveniences.

SECTION 8.

"Flats" is a building of two or more stories containing separate(self contained) dwellings, each having an independent street entrance.

SECTION 9.

A hotel is a building, or part thereof, intended, designed or used, for supplying food and shelter to residents thereof or guests, and having a general public dining room or cafe, or both, and containing more than fifteen guests' rooms.

SECTION 10.

An Office building is a building divided into rooms above the first story, and intended and used for office purposes, and no part of which shall be used for living purposes, except by the janitor and his family.

SECTION 11.

A lodging house is a building containing more than fifteen rooms in which persons are or may be accommodated, with sleeping apartments for hire by the day, week or month.

SECTION 12.

A wood frame building is a building or structure whose exterior walls ,or a portion thereof, are constructed of wood. Buildings sheathed with boards, and partially or entirely covered with four inches of brickwork, shall be deemed frame buildings. Wood frames covered with metal shall be deemed to be wood structures.

No wood frame building, now erected within the fire limits shall be repaired without a permit from the Board of Public Works.

SECTION 13.

Wood frame buildings shall not exceed a height of sixty (60) feet.

SECTION 14.

The walls of wood frame buildings shall be constructed with studding, covered with weather boarding on the outside. No uncovered studding will be allowed against the wall of an adjoining building or structure,

SECTION 15.

THE outer walls of wood frame buildings over one story in height, veneered with brick or stone, shall be at least eight (8) inches in thickness, including veneer and studding. No building shall be veneered with brick over three.(3) stories in height. Veneered walls must be anchored every three (3) feet in height to the inside studding.

SECTION 16.

Brick or concrete foundations for wood frame buildings, one and two stories in height, used as dwellings, must not be less than eight (8) inches thick, and not over five (5) feet high. When the foundations are more than five (5) feet high they must not be less than thirteen (13) inches thick.

Foundations for three-story wood frame buildings shall not be less than thirteen inches thick, and for buildings over three stories, the foundation shall not be less than seventeen (17) inches thick.

When foundation walls of wood frame buildings are used for embankment or retaining wall, one, two and three-story buildings with basement shall have foundation or basement walls of brick or concrete not less than thirteen (13) inches thick, and not higher than eight (8) feet from top of top footing to bottom

of first floor joists (first tier of joists), and in the event of a deeper basement, the walls thereof shall be not less than seventeen (17) inches thick; the bottom or footing of said walls shall not be higher than ten (10) feet from top of top footing to under side of first story floor joists, and the footing shall have a spread of one-half (1/2) the thickness of the wall resting on it.

All buildings over four (4) stories in height shall have foundation or basement walls of brick or concrete not less than twenty-one (21) inches thick, and shall not be more than twelve (12) feet high from top footing to bottom of first story floor joists; footings shall have a spread of one-half (1/2) the thickness of the wall resting on it.

Where there are no footings on the outside of a foundation or basement wall, the footings must extend far enough on the inside to make them the required width.

SECTION 17.

For a building of two stories in height, except factories, mills or warehouses, the studding for the outside walls and bearing partitions shall not be less than 2x4 inches; for a building of three stories in height, the studding shall not be less than 3x4 inches, to the bottom of the upper floor joists, and 2x4 inches for the remaining height; for a building of four stories in height the studding shall not be less than 3x6 inches for the first story, and 2x6 or 3x4 inches for the second and third story, and 2x4 inches for the fourth story.

Where the bearing partitions are less than twelve (12) feet apart, the studding may be less than the outside walls, but shall not be less than 2x4 inches. Partitions dividing several stairways and sliding doors may be less than 2x4 inches.

Studding on the exterior and interior walls of buildings shall not be placed more than sixteen (16) inches from centers.

The underpinning of buildings shall be one (1) inch thicker than the studding of the story immediately above.

SECTION 18.

All dividing partitions between buildings shall be close boarded with redwood from the lower floors to the ground, and from the upper ceilings close to the under side of the roof boarding, so as to effectually check all connection from one building to another. Where a large building is divided into tenements, the boarding shall be applied on each dividing partition. The distance between dividing partitions shall not exceed twenty-five (25) feet.

SECTION 19.

When stories are framed separately, each tier of studding must have top and bottom plates; when stories are not framed separately, proper bridging must

be placed behind the ribbon at the ceiling line and on top of the joist at the floor line. Bridging must be two inches thick and of the full width of the studding in every case.

All wood beams or joists shall be trimmed away at least one and one-half (1 1/2) inches from all flues and chimneys, whether the same be a smoke, air or any other kind of chimney or flue.

The trimmer beam shall be not less than eight (8) inches from the inside face of a flue, and four (4) inches from the outside of a chimney breast, and the header beam must be not less than two (2) inches from the outside face of the brick or stone work of the same, except that for the smoke flues of boilers and furnaces where the brick work is required to be eight (8) inches in thickness, the trimmer shall be not less than twelve (12) inches from the inside of flue.

SECTION 20.

All stud walls, or partitions hereafter built, altered or repaired, shall have one row of bridging for every seven feet in height over the first seven feet. Said bridging shall in all cases extend to the lathing or sheathing, so as to prevent the passage of fire and smoke, and shall be the same thickness as the studding. All outside walls and cross partitions shall be thoroughly and angle braced. All buildings over twenty-five (25) feet in width shall have a row of solid blocking over girder or partition of stairways and over all bearing partition that are more than eight (8) feet apart. A row of cross bridging at least two (2) inches thick must be placed between the floor joists at least in every twelve (12) feet apart and all spans of floor joists over twenty-three (23) feet shall have two rows of cross bridging.

SECTION 21.

When a chimney breast is furred out, the space between the chimney and the breast shall be so built that the passage of fire and smoke shall be vertically intercepted, and wherever cove or cornices are used, they shall be solid rough brackets to the stud.

SECTION 22.

Bay windows may project not more than three (3) feet over the street line, measured to the finish; they must not be more than ten (10) feet wide, measured from end to end, and the finish of their soffits must be at least ten (10) feet above the sidewalk. This section to apply only to buildings that have wall built on street lines.

SECTION 23.

All frame buildings more than two stories high, hereafter erected or enlarged, to be used as factories, shall be constructed as follows:

(a) The weights of all the floors shall be concentrated at certain points and girders and no support shall rest directly upon a stud wall, but all beams, girders supporting floors shall rest directly on posts.

(b) Studs. The filling between posts and walls shall be built of not less than 2 x 3 inch studs.

SECTION 24.

Sheds erected within the fire limits shall be either constructed of fireproof material, or the framework thereof must be entirely covered with fire proof material on the outside, and said sheds shall not exceed twenty (20) feet in height; they shall be enclosed only on one side, and erected on the ground.

SECTION 25.

Temporary inclosed wooden sheds, not to exceed twenty (20) feet in height, may be erected within the fire limits to facilitate the erection of buildings in course of construction; when said buildings are completed the sheds must be removed.

SECTION 26.

Privies or water closets of wood, within the fire limits, shall not exceed ten (10) feet in height from floor to ceiling. For a hotel or lodging house, they shall not have more than fifty superficial feet or floor room, and for all other buildings they shall not have more than twenty-five superficial feet of floor room. The roof and the framework shall be covered with fireproof material, and they must not be placed higher than the fourth story of any building, nor project over the line of any street, lane, alley or place, and they shall not be used for any other purpose,

SECTION 27.

Any frame building within the fire limits may be raised or lowered to the official grade of the street; provided that in case said building is to be raised, a brick or concrete basement or foundation of such dimensions as is required by section 16 of this Ordinance shall be built under it up to the curb level.

SECTION 28.

The brick used in all buildings shall be good, wellburnt brick.

When old bricks are used in any wall they shall be thoroughly cleaned before being used, and shall be whole and good, well-burnt bricks.

All materials must be of good quality and shall conform to legal, trade and manufacturers' standards.

SECTION 29.

The sand used for mortar in all buildings shall be clean, sharp grit sand, free from loam or dirt.

SECTION 30.

Lime mortar shall be made of one part lime and not more than five (5) parts of sand, measured. All lime used for mortar shall be thoroughly burnt, of good quality, and properly slaked before it is mixed with the sand.

SECTION 31.

Cement mortar shall be made of cement and sand in the proportion of one part of cement and not more than three parts of sand, and shall be used immediately after being mixed. The cement and sand are to be measured and thoroughly mixed before adding water.

SECTION 32.

All cements used in building operations shall be of good standard make, finely ground and free from lump.

SECTION 33.

Cement and lime mortar, mixed, shall be made of one (1) part of cement to fourteen (14) parts of lime mortar, measured in a box.

SECTION 34.

Sub. 1. Concrete for foundations shall be made of at least one part of cement, two parts of sand and six parts of quarry run clean broken stone of such size as to pass in any way through a two-inch ring, or good clean gravel may be used in the same proportion as broken stone. The cement, sand and stone, or gravel, shall be measured and mixed in the manner prescribed for mortar. Concrete foundations, wherever used, must have forms of wood around them, except against firm banks, and the concrete must be well rammed, in individual layers, not more than six (6) inches each in thickness. All concrete when in place shall be properly rammed until the water stands on the top of the mass of concrete.

Sub. 2. Sand shall be free from loam and shall be otherwise clean and sharp.

SECTION 35.

Where no test of the sustaining power of the soil is made, different soils, excluding mud, at the bottom of the footings, shall be deemed to safely sustain the following loads to the superficial foot, namely; soft clay, one (1) tom per square foot; ordinary clay and sand together, in layers; wet and springy, two (2) tons per square foot; loam, clay or fine sand, firm and dry, three (3) tons per square foot; very firm, coarse sand, stiff gravel or hard clay, four (4) tons per square foot; or as otherwise determined by the Board of Public Works Where a test is made of the sustaining power of thesoil, the Board of Public Works shall be notified, so that they may be present in person or by representatives. The record of the test shall be filed in the Office of theBoard of

Public Works. When a doubt arises as to the safe sustaining power of the earth upon which a building is to be erected, the Board of Public Works may order borings to be made, or direct the sustaining power of the soil to be tested by the owner of the proposed building, at his own expense.

SECTION 36.

The loads exerting pressure under the footings or foundations in buildings not more than three (3) stories in height shall be computed as follows: For warehouses and factories they shall be the full dead load and the full live load established by Section 123 of th is Ordinance. In stores and buildings for light manufacturing purposes they shall be the full dead load and seventy-five (75) per cent of the live load established by section 123 of this Ordinance.

In churches, schoolhouses and places of public amusement or assembly they shall be the full dead load and seventy-five (75) per cent of the live load established by section 123 of this Ordinance.

In office buildings, hotels, dwellings, apartment houses, tenement houses, lodging houses and stables, they shall be the full dead load and sixty (60) per cent of the live load established by section 123 of this Ordinance.

Footings shall be so designed that the loads will be as nearly uniform as possible and not in excess of the safe bearing capacity of the soil, as established by Section 35 of this Ordinance.

SECTION 37.

All wood beams , joists and other timber in the party walls of every stone brick or iron building shall be separated from the beam or timber entering in the opposite side of the wall by at least four (4) inches of solid mason work. All wood trimmer and header beams or joists shall be proportioned to carry with safety the loads they are intended to sustain.

Every wood header or trimmer more than six (6) feet long, used in any building, shall be hung in stirrup-irons of suitable thickness for the size of the timbers. Every wood beam or joist, except header and tail beams, shall rest at least four (4) inches on the wall, or upon a girder, as authorized by this Ordinance. The ends of all wood floor androof beams, where they rest on brick walls, shall be cut to a bevel of three (3) inches on their depth. In no case shall either end of a floor or roof beam be supported on stud partitions, against a brick wall. All wood floor and wood roof beams shall be properly bridged with cross-bridging, and the distance between bridging or between bridging and walls, shall not exceed eight (8) feet. Solid bridging not less than two (2) inches thick shall be placed between joists over all girders. All wood joists shall be trimmed away at least one and one-half (1 1/2) inches from all flues and chimneys, whether the same be smoke, air or any other flues or chimneys. The trimmer

beam shall be not less than eight (8) inches from the inside face of a flue and four (4) inches from the outside of a chimney breast, and the header beam not less than two (2) inches from the outside face of the brick or stome work of the same, except that for the smoke flues of boilers and furnaces where the brick work is required to be eight (8) inches in thickness, the trimmer beam shall be not less than twelve (12) inches from the inside of the flue. The header beam, carrying the tail beams of a floor, and supporting the trimmer arch in front of a fire place, shall be not less than twenty (2)) inches from the chimney breast. All girders and trusses shall have sufficient bearing on their supports to insure stability.

Cutting for piping or other purposes shall not be done so as to reduce ta the strength of the supporting parts below that required by the provisions of this Ordinance.

All wood partitions shall have solid caps and sills and at least one row of bridging not less than two (2) inches thick and of the full width of the standing studding, to effectually prevent the passage of fire or smoke. Bearing partitions shall have also sills and plates.

Flues of ranges, boilers and stoves in hotels, restaurants and boarding houses shall not be furred with wood, but shall be plastered directly on the brick or metal lath in the story where the fires are located.

SECTION 38.

Girders, which support beams or joists , shall be anchored to the walls and fastened to each other by suitable iron straps. The end of wood beams or joists resting upon girders shall be butted together end to end and strapped by wrought-iron straps of the same size, the same distance apart, and in the same beam as the walls anchors, and shall be fastened in the same manner as said wall anchors; or they may lap each other at least twelve (12) inches., and be well spiked together where lapped.

Each tier of beam front and rear, opposite each pier shall have hard wood anchor straps dovetailed into the beam diagonally , which straps shall cover at least four beams, and be one (1) inch thick and four (4) inches wide; but such anchor straps shall not be let in within four (4) feet of the center line of the beam, or wood straps may be nailed on the top of the beam and kept in place until the floors are being laid. Every pier and wall, in 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 third beam.

SECTION 39.

All timber columns shall be squared at the ends perpendicularlly to their axes. All timber columns, except for one and two-story buildings, shall have timber or iron cap base plates.

Additional iron cheek plates shall be placed between the cap and base plates and bolted to the girders when required to transmit the loads with safety.

SECTION 40.

Attics or the unfinished space between the ceiling and roof rafters of every building shall be divided into compartments or rooms in order to prevent the rapid progress of fire. Such compartments shall not have a floor area of more than twenty-five hundred (2500) square feet; provided, this section shall not apply to buildings of Class A.

SECTION 41.

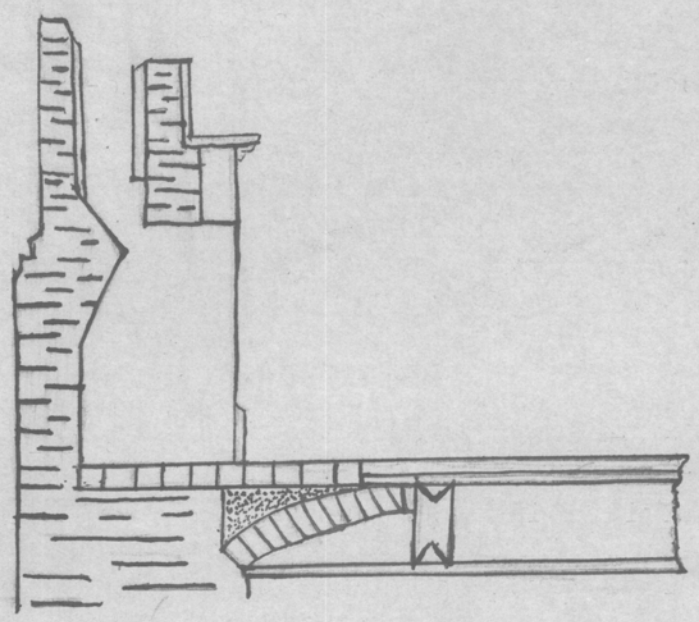
All dividing partitions between buildings shall be close boarded from the lower floors to the ground and from the upper ceilings close to the under side of the roof boarding. They shall be boarded with redwood so as to effectually check all connections from one to another.

SECTION 42.

All fireplaces and chimney breasts, where mantels are placed, whether intended for ordinary fireplace uses or not, shall have trimmer arches to support hearths, and the said arches shall be at least twenty (20) inches in width, measured from the face of the chimney breast, and they shall be constructed of brick, stone, concrete, or burnt clay. The length of a trimmer arch shall not be less than the full width of the chimney hearth. Wood centers under trimmer arches shall be removed before plastering the ceiling underneath. If a heater is placed in a fireplace, the hearth shall be the full width of the heater. All fireplaces in which heaters are placed shall have incombustible mantels. Wood mantel or other woodwork shall not be exposed back of a summer piece; the ironwork of the summer piece shall be placed against the brick or stone work of the fireplace. Fireplaces shall not be closed with a wood fire-board.

SECTION 43.

Hearths of open fireplaces shall be of brick concrete or stone and shall rest upon brick trimmer arches or other fireproof material, as shown by the following cut.:



SECTION 44.

Gas grates or gas logs shall not be placed in any building elsewhere than in a fireplace constructed in the manner prescribed in Section 42 or Section 45 of this Ordinance.

Such fireplace must be connected with a brick or patent chimney constructed in accordance with Sections 42, 45 and 49 of this Ordinance, or in lieu of such brick or patent chimney may have a vent pipe, the seven and one-half (7 1/2) feet of which superimposed on the fireplace, shall be of patent chimney not less than four (4) inches in diameter, or equivalent area, constructed in accordance with Section 49 of this Ordinance. Said vent must be continued with a pipe not less than four (4) inches in diameter, or equivalent area, made of No. 24 or heavier galvanized iron, wrapper with asbestos one-eighth (1/8) of an inch thick, or with air cell corrugated asbestos one-quarter (1/4) of an inch thick, to be made fast with metal bands.

Vent pipes shall not extend through the side of any building, or be so placed as to be within one (1) inch of any wood or other combustible material:

SECTION 45.

Enclosing walls and division walls of all chimneys, except patent chimneys, as hereinafter provided, shall be not less than four (4) inches thick. Smoke flues of brick shall not be less than seven and one-half (7 1/2) by seven and one-half (7 1/2) inches in the clear, and such flue shall have but one (1) inlet; for a two (2) story building with two (2) inlets, the flue shall be seven and one-half by eleven and one-half (7 1/2 x 11 1/2) inches in the clear, and for a three (3) story building with three (3) inlets, the flue shall be seven and one-half by fifteen and one-half (7 1/2 x 15 1/2) inches in the clear . Flues in buildings of greater height shall be increased in size proportionately. Flues larger than two hundred (200) square inches and less

than five hundred (500) square inches must be surrounded by walls of not less than eight (8) inches in thickness; flues larger than five hundred (500) and less than one thousand (1000) square inches must be surrounded by walls of not less than twelve (12) inches in thickness up to a height of fifteen (15) feet above the inlet and eight (8) inches in thickness the remaining height; flues larger than one thousand (1000) square inches shall be proportionately increased in size, and shall be lined with firebrick for at least twenty (20) feet above the opening.

For Bakeries, the oven flues shall be not less than eleven by eleven (11 x11) inches in the clear, and such flues shall have the sides,back and front of brickwork not less than eight (8) inches in thickness.

Fireplaces, chimneys and flues of all descriptions except as herein otherwise provided, without reference to the purpose for which they may be used,in all buildings, shall be lined on the inside with pipe. The firebacks of all fireplaces hereafter erected shall be of solid masonry not less than eight (8) inches thick. When a grate is set in a fireplace, a lining of firebrick at least two (2) inches in thickness shall be added to the fireback, unless soapstone tile or cast iron is used, and filled solidly behind with fireproof material.

The inside four (4) inches of all boiler flues for boilers, exceeding twenty-five (25) horse-power shall be fire brick, laid in fire mortar, for a distance of twenty-five (25) feet in every direction from the source of heat. All smoke flues of smelting furnaces or of other apparatus which heat the flues to a high temperature, shall be built with double walls of suitable thickness for the temperature, with an air space between the walls; the inside four (4) inches of the flues shall be of fire brick. All smoke flues shall extend at least two (2) feet above the ridge of a peak roof,

On dwelling houses or stables three (3) stories or less in height, not less than six (6) of the top courses of a chimney shall be laid in cement mortar, and the brickwork shall be carefully bonded.

In all buildings hereafter erected, every smoke or vent flue, shall be lined on the inside with cast iron, boiler iron or well-burnt clay or terra cotta pipe made smooth on the inside. All stone or brick hot air flues and shafts shall be lined with tin, galvanized iron or burnt clay pipes. Wood casing, furring or lath, shall not be placed against any metal pipe used to convey hot air or steam. Flue lining must start from the throat of a fireplace, or from the level of the floor of the story where a thimble is placed, and they must be carried up continuously to the top of the flue. The ends of all lining pipes must be made to fit close together, and each pipe must be set first and bricked around as the flue is carried up. Each smoke pipe shall be inclosed on all sides with

not less than four (4) inches of brickwork, properly bonded together.

SECTION 46,

No chimney, except a patent one, shall be built upon any floor or beam of wood.

Chimneys shall not be corbeled out more than eight (8) inches from the wall, and the corbeling shall consist of at least five (5) courses of brick, but in twelve (12) inch brick walls corbeling shall not exceed four (4) inche s Piers which support chimneys shall start from the foundation on the same face with the chimney breast and shall be not less than twelve (12) inches on the face and properly bonded into the walls. When a chimney is to be cut off below, in whole or in part, it shall be wholly supported by stone, brick,iron or steel. Chimneys which are dangerous in any manner whatever shall be repaired and made safe or taken down.

WhEn a smoke pipe enters a brick chimney a thimble shall be used. All thimbles used shall be made of fire clay not less than one-half (1/2) inch larger than thimbles, or be bricked around with not less than four (4) inches of brick work, brought out to face of thimbles.

Chimneys, built wholly outside of frame structures or in light wells thereof, shall be well anchored to the stud walls with wrought iron anchors or bands on the outside at intervals not exceeding ten (10) feet.

SECTION 47.

Offsets for reducing the size of chimneys shall not be greater than one (1) inch to each course. All chimneys isolated from brick walls shall be so built as not to increase in size from the foundation up.

SECTION 48.

Iron cupola chimneys of foundaries shall extend at least ten (10) feet above the highest point of any roof within a radius of fifty (50) feet of such cupola. No woodwork shall be placed within two (2) feet of the cupola.

SECTION 49.

Chimneys hereafter erected must be built of brick, stone or concrete, or of patent chimney, for which a United States patent has been issued, and which has been approved in writing by the Board of Public Works.

If a patent chimney be erected on the outside of a building, it shall rest on a substantial iron bracket. If supported by brackets, the brackets must be of metal and fastened to studding with bolts and nuts; screw or lag screws shall not be allowed. When erected on the inside of a building it shall rest on an iron plate not less than one-quarter (1/4) of an inch in thickness and not less than eight (8) inches of brickwork on top of said iron plate,and shall have a smoke proof opening near the bottom for cleaning it. All patent chimneys shall be braced every four (4) feet of their height. All joints must be cemented and the bands covering the joints shall

be made of the best No. 24 iron and filled with cement to make them smoke and spark proof.

All galvanized iron used for the outside covering of patent chimneys shall be of the best No. 24 iron, riveted together with rivets not more than three (3) inches apart, or may be seamed and top and bottom of seams secured by a rivet and shall be ventilated with eight (8) holes not less than one (1) inch in diameter, said holes to be made close to the top of chimney above the roof, so as to permit the escape of hot air; there shall be a space of not less than one (1) inch between the clay pipe and the iron covering. No patent chimney shall be less than one and one-half (1 1/2) inches from all woodwork, and the opening in the roof and at each floor and ceiling through which it passes shall be closed with an iron plate or other fire-proof material, so as to prevent the passage of fire and smoke. Patent chimneys shall not be fastened to the laths or the siding of the building, but shall be securely fastened to the studding or cross pieces with good iron straps, and in no case shall any patent chimney be suspended from any roof timber or floor beam.

All pipe used for patent chimneys shall be composed of pure calcined clay, not less than one (1) inch in thickness, and shall have the name of the manufacturer stamped into each piece. Patent chimneys built on the inside of a house shall have an opening in the partition enclosing the chimney to permit of the cleaning of the same.

SECTION 50.

All fireplaces connected with patent chimneys or gas logs must be set on an iron plate not less than one-quarter (1/4) of an inch in thickness and not less than three (3) feet nine (9) inches in length by three (3) feet in width, which shall be free from all holes; boards shall not be placed under the iron plate, which must rest on the floor joists. On top of the iron plate there shall be one (1) inch of concrete or cement, then a course of brick, followed by the tiling or marble; the strength of the floor must not be impaired by the cutting out for the fireplace. In lieu of resting on the floor joists, said iron plate may be suspended by wrought iron stirrups of sufficient stength to sustain the fireplace and patent chimney.

The brick jambs of every fireplace or grate opening shall be at least eight (8) inches wide, and the backs shall not be less than eight (8) inches thick; Where bends are necessary in patent chimneys, offsets shall be used; said offsets shall be made solid and without joints.

The inside dimensions of patent chimneys shall be as follows:

For fireplace flues, 18 inch openings, 6 inch
For fireplace flues, 21 inch openings, 7 inch.
For fireplace flues, 24 inch openings, 8 inch.
For ordinary stove flues, 6 inch.
For French range flues, 8 inch.
For steel range flues, 8 inch.
For furnace flues, 8 to 10 inch.

And it is herein provided that any chimney may be erected of terra cotta pipes surrounded with galvanized iron, complying with Section 49, even though it is not patented.

SECTION 51.

No smoke pipe, stove pipe, terra cotta pipe, earthen pipe or other smoke flue, except as provided in Section 49, shall project through any external wall or window, or through the roof of any skylight of any building, and no smoke flue shall pass through any wooden partition of any building, unless there is a ventilated air space at least four inches around the pipe. Any smoke pipe passing through the floor or floors of any building shall be protected by a metal casing extending from the ceiling to at least one (1) foot above the floor, and there shall be a ventilated air space of at least four (4) inches around the said pipe,

SECTION 53.

It shall be the duty of the Board of Public Works to cause every chimney, except as provided in Section 49 of this Ordinance, to be carried up at least four (4) feet above the extreme height of the building to which it is attached; and should the Board of Public Works deem any chimney unsafe to the building or buildings adjoining, they shall order the same to be carried four (4) feet above the extreme top of said adjoining building or buildings; and if, in the opinion of the Board of Public Works a galvanized iron pipe is not sufficient for the safety of the building or buildings, they shall inform the owner or owners, or the person having control thereof, and order a brick or terra cotta chimney to be erected in lieu thereof within ten (10) days after such order.

SECTION 53.

Open fireplaces shall have arched heads, which shall, wherever possible, extend to the back of the tile or marble facing.

SECTION 54.

The top of all heating furnaces, set in brick, shall be covered with brick supported by iron bars so constructed as to be perfectly tight; said covering shall be in addition to and not less than six (6) inches from the ordinary covering of the hot-air chamber. Smoke pipes and furnaces not set in brick or covered with asbestos, 2 inches thick shall be at least two (2) feet from any woodwork, said woodwork must be protected by sheets of tin plate in such manner

that an air space of at least two (2) inches will be formed between the woodwork and the tim plate which shall extend one (1) foot beyond the furnace on all sides.

SECTION 55.

Every steam boiler over ten-horse power in any building used for either stores, offices, mechanical or manufacturing purposes, or in hotels, lodging or tenement houses, theaters or assembly halls, or places of public entertainments, shall be enclosed in a fireproof room of brick, terra cotta, iron or other incombustible materials. All doors leading into such rooms shall be covered on insides with metal and shall be hung to rabbeted iron frames or iron hinges set in brick.

SECTION 56.

All hot-air boxes hereafter placed in the floors or partitions of buildings, except when such are entirely of incombustible material, shall be made of double pipes of tin plate, which shall be not less than half an inch apart, and set in soapstone or equally fireproof borders not less than two (2) inches in width, to which the pipes shall be tightly joined by inserting the same into a groove, or the pipes and boxes shall be covered with asbestos one-sixteenth (1-16) of an inch in thickness cemented thereon.

Hot-air boxes or pipes less than ten by twelve (10x12) inches in size shall be kept at least half an inch from any woodwork; those of greater size shall be kept at least one (1) inch from any woodwork. No woodwork shall Be placed within one (1) inch of any metal pipe intended to convey steam or heated air, unless such pipe is protected by a casing of metal, soapstone or earthen ring; provided, that no covering, except it be of incombustible material, shall be placed within one (1) inch of the outer surface of any steam pipe.

SECTION 57.

Boilers exceeding ten (10) horse-power, used for generating steam for heating or motive power, and large furnaces, shall not be placed on any floor above the cellar of any building, unless the same is set on metal beams and arches, and such beams shall be built into the walls. All steam boilers shall be provided with a tank or other receptacle of sufficient capacity to at least hold a sufficient supply of water to last six hours.

Whenever steam boilers, large cooking ranges, furnaces, ovens, coffee roasters, candy kettles and laundry stoves set in brick or other structures in which fires are maintained, are set or kept on any wooden floor, such floor shall be protected by not less than two (2) inches of brick laid with air spaces, or with not less than two (2) inches of hollow tiles, upon either of which shall rest a continuous sheet-metal bearing plate not less than three-sixteenths (3-16) of

an inch in thickness, all the joints of which shall be securely riveted; the top of said plate shall be covered with not less than five (5) inches of brick or concrete.

The backs of all ranges or kettles, set in brick, built against any frame partition, or against any brick wall, upon which there is any wooden furring or laths or sheathing, shall be extended with brick or hollow tiles to a height of two (2) feet above the top of such range or kettle.

This Section shall apply to all buildings in the City of Oakland .

SECTION 58.

Registers located over a brick furnace shall be supported by a brick shaft built up from the cover of the hot air chamber; said shaft shall be lined with a metal pipe, and all wood beams shall be trimmed away not less than four inches from it. Where a register is placed on any woodwork in connection with a metal pipe or duct, the end of said pipe or duct shall be flanged over on the woodwork under it. All registers for hot air furnace placed in any woodwork or combustible floors shall have stone or iron borders firmly set in plaster of paris or gauged mortar. All register boxes shall be made of tin plate or galvanized iron with a flange on the top to fit the groove in the frame, and the register must rest upon the same; there shall be an open space of two inches on all sides of the register box, extending from the under side of the border through the ceiling below. The said opening shall be fitted with a tight tin or galvanized iron casing, the upper end of which shall be turned under the frame. When a register box is placed in the floor over a portable furnace, the open space on all sides of the register box shall be not less than three (3) inches. When only one register is connected with a furnace said register shall have no valve.

SECTION 59.

Steam heating pipes shall not be placed within (2) two inches of any timber or woodwork, unles the timber or woodwork is protected by a metal shield; then the distance shall be not less than one (1) inch. All steam heating pipes passing through floors and ceilings or lath and plastered partitions, shall b e protected by a metal tube, one (1) inch larger in diameter than the pipe, having a metal cap at the floor.

All wood boxes or casings inclosing steam pipes and all wood covers to recesses in walls in which steam pipes are placed, shall be lined with metal.

All pipes or ducts used to convey air warmed by steam or hot water shall be made of metal or other fireproof material.

SECTION 60.

The backs of all ranges, candy furnaces and kettles, if set in brick and built against any frame partition, shall be not less than eight (8) inches thick and shall be extended with brick or hollow tile not less than two (2) inches thick to a height of two (2) feet above the top of the furnaces or kettles.

In no case shall any range, candy furnace or kettle, set in brick, be built against a brick wall with any combustible material between it and said wall, or upon said wall, for a height of two (2) feet above the top of such range, candy furnace or kettle.

All wood and lath and plaster or wooden ceilings over all ranges in hotels, shall be guarded by metal hoods placed at least nine (9) inches below the ceiling or shall be metal lined on walls and ceiling back of and above the range. All ventilating pipes connected with the hood over a range shall be at least nine (9) inches from any wood, lath and plaster, or combustible material, or such pipes shall be covered with one (1) inch of asbestos plaster on wire mesh, and shall not pass through any floor.

Stoves shall be kept twenty (20) inches, and their smoke pipes twelve (12) inches, from any wood lath and plaster or woodwork, or shall be protected with a metal shield arranged with at least one (1) inch air space behind such shield.

All low portable gas stoves or heaters shall be placed on iron stands or other incombustible bases, or the burners shall be at least six (6) inches above the base of the stove, and metal guard plates placed four (4) inches below the burners; all woodwork under them shall be covered with metal or other incombustible material.

SECTION 61.

All exterior cornices on buildings within the fire limits shall be constructed of, or covered entirely with, fireproof material.

All metal cornices shall be riveted and well secured to iron brackets, not more than two (2) feet apart and properly built into the wall.

Cornices of stone, brick or other masonry shall be properly supported on, and well secured to, the wall, and the greatest weight of material of such cornices shall be on the inside of the face of the wall.

All the wooden cornices and gutters, on buildings within the fire limits, hereafter repaired, altered, replaced or changed, shall be constructed of, or covered with fire-proof material, and all structures hereafter constructed or altered upon roofs, and of greater height than that prescribed by this Ordinance for frame buildings, shall be covered with metal lath and plaster on the inside, and covered on all outside surfaces with metal, including both surfaces and edges of doors.

All such buildings shall have scuttles or bulkheads covered with some fireproof material, with ladders or stairs leading thereto and easily accessible to all occupants. Scuttles shall not be less than two by three (2 x3) feet in size.

SECTION 62.

All skylights in new buildings, on roofs projecting at an angle less than 22 1/2 degrees, not inclosed by a substantial railing at least three (3) feet high, shall be protected by screens of No. 10 wire with meshes not more than one and one-half (1 1/2) inches square. The screens must be secured to the sash and must be kept at least four (4) inches above the glass.

Wire rolled glass may be used, in which case the wire netting may be omitted.

SECTION 63.

In every building of Class "B" or "C" hereafter erected or altered, all the walls or partitions forming interior light or vent shafts, shall be built of brick or other fireproof materials. The walls of all light or vent shafts, whether exterior or interior, hereafter erected, shall be carried up at least three (3) feet above the level of the roof, and the brick walls shall be coped like other parapet walls.

Stud walls of light shafts and vent shafts shall be lined on both sides of studs with fireproof material. Light shafts are inclosed structures passing through the floor or floors, for the purpose of admitting light or air; or an open space, within a building, entirely surrounded with walls.

All openings in light shafts shall have metal or metal covered frames; sashes shall be glazed with wire-rolled glass not less than three-sixteenth (3-16) inch in thickness.

SECTION 64.

Floor lights, used for transmission of light to floors below, shall be constructed of metal frames and bars or plates, and if any glass therein measures more than sixteen (16) square inches, the glass shall be provided with a mesh of wire either in the glass or under the same, and the floors lights shall be of the same proportional strenghth as the floors in which they are placed.

SECTION 65.

All brick, stone, iron or frame buildings over thirty-five (35) feet high shall have permanent means of access to the roof from the inside. The openings in the roof shall not be less than eighteen by thirty (18x30) inches.

SECTION 66.

Sub. 1. The roofs of all buildings hereafter erected within the fire limits, shall be covered with either metal, slate,tiles, terra cotta or asphaltum; provided, however, that said asphaltum shall be first laid over five plys of felt, well cemented together, and then covered with at least three-quarters (3/4) of an inch of gravel embedded in said asphaltum, passed through a screen whose meshes shall not exceed one-half (1/2) inch and rejected by a No. 6, screen.

Sub. 2. Whenever the roof or roofs of any building or buildings within the fire limits shall (in the judgment of the Board of Public Works)be or become damaged to the extent of 40 per cent of the value of said roof or roofs, then said roof or roofs shall becovered as provided in Subdivision 1 of this Section.

Sub. 3. The supports, rafters and all parts of roofs, within the fire limits, rising at any point to a height of mere than twenty (20) feet from the top of the masonry walls, or to a height greater than that provided in Section 88, shall be constructed of fireprocf material.

SECTION 67.

All mansard stories within the fire limits shall be constructed of fireproof materials; wooden partitions and rafters may be used, provided the whole of said story of the interior is metal lathed and plastered, and covered with metal, slate or tile on the exterior; but if erected on any building of greater height than that allowed in section 88 they shall be constructed of iron rafters, with iron or steel on the inside and plastered, or filled in with fireproof material not less than three (3) inches thick, and covered with metal, slate or tile.

SECTION 68.

Open elevators or elevators without fireprcof inclosures may be used in buildings of Class "A"; they may also be used in buildings of Classes "B" and "C", provided they are located and operated in well-holes of fireproof staircases (oak treads may be used); provided the staircase is entirely surrounded by walls, either of fireprocf material or of studding, covered on both sides with metal lath and plastering. They may also be used in buildings of Class "B" provided they are placed separately and away from staircases.

SECTION 69.

Elevators, hoists, dumb waiters and lifts and all openings or shafts passing through the floor or floors, in all buildings in the fire limits, and elevators for passengers in all buildings in the City of Oakland, shall be enclosed by walls of non-combustible material, or of studding covered on both sides with iron, or with metal lath and plastering, not less than three-quarters