

MAXIMUM ALLOWABLE SPANS FOR CEILING JOISTS AND ROOF RAFTERS

Table with 4 columns: Size of Joists (Inches), Spacing Center (Inches), For Ceiling Joists (Feet and Inches), For Roof Rafters (Feet and Inches). Rows include 2x4, 2x6, 2x8, 2x10, 2x12.

NOTE: The allowable spans as given in the above table for ceiling joists are for unspaced attic space. The allowable spans for roof rafters are for wood shingles roofs, or roofs of approximately equal weight, and roofs with a slope of at least 4 inches vertical for 1 foot horizontal.

Joists and rafters of other grades, woods and sizes may be used, in which case they shall not be stressed to exceed the maximum allowable fiber stress.

The allowable span for roof rafters shall be measured from plate to ridge, except that where rafters are braced or a complete truss is formed, the span shall be considered as the distance between supports.

All rafters shall be in pairs, shall meet exactly at the ridge and shall be securely nailed to the wall plates.

Valley rafters shall be designed in accordance with the stresses specified in this Code, and shall ordinarily be 2 inches greater depth than the rafters they support.

Location. (b) Class 3 B buildings shall be provided with side yards as specified in Section 4.401 (d) and front and rear yards as specified in Section 12.301 (b) for Class 3 A buildings.

Light and Ventilation. (c) Light and ventilation shall be as specified in Chapter V.

Exits. (d) Exits shall conform to the following requirements: Two means of egress shall be provided from all Class 3 B buildings, except that basements of not over 2,000 square feet in area need not be provided with two means of egress, and upper stories need not be provided with two means of egress unless the area of any upper story exceeds 2,000 square feet.

In duplex residences means of egress from the upper story shall be either a separate enclosed stairway affording direct exit to grade without entering the story below, or an enclosed stairway and stair halls common to both stories. No windows shall be permitted in such enclosures except those facing a court, yard or street. The partitions enclosing stairways shall consist of wood studs covered on both sides with incombustible lath and two coats of gypsum or portland cement plaster, or other construction affording 2 hour fire resistance rating as determined by the Standard Fire Test as defined in Chapter X.

Where such stairways extend to the basement they shall be enclosed by an enclosure equivalent to that specified above.

Winders may be used in stairs in class 3 B buildings.

Fire Protection. (e) The following fire separations shall be provided. Unpierced masonry fire walls not less than 8 inches thick or other construction affording at least 2 hour fire resistance rating shall be provided in Class 3 B buildings built as terraces so that no more than two families shall be accommodated between such fire walls. Such fire wall shall be continuous vertically from the foundations to the roof and shall project not less than 24 inches above flat roofs and shall be built solidly against the roof boards on pitched roofs.

Double residences shall have the dividing wall of such construction so as to afford 1 hour fire resistance rating.

Dividing walls separating families in terraces, not required to be masonry fire wall, shall be of such construction so as to afford a one hour fire resistance rating. Fire stops shall be provided at all intersections of all interior and exterior walls with floors and either ceilings or roofs in such a manner as to effectively cut off communication by fire through hollow concealed spaces and prevent both vertical and horizontal drafts. Such fire stopping shall be not less than 2 inches in nominal thickness. Where balloon frame construction is used, or where joists are supported on a ribbon board, fire stopping shall be provided both immediately above and below the joists.

Special Hazards. (f) Chimneys and heating appliances shall be installed as specified in Chapter XI.

When a private garage is located beneath, or attached to or within 10 feet of any class 3 B building, the following provisions shall govern the construction thereof:

The floor and ceiling above the garage and the walls and partitions of such garage shall be of such construction as will afford a 1 hour fire resistance rating.

Openings connecting Class 3 B buildings with such garages shall be protected by a Class D fire door, with approved frame and hardware. Garage floors shall be of concrete or equally fire resistive and impervious material.

If such garage is heated with hot air, there shall be no cold air return and the hot air register shall be placed at least 3 feet above the garage floor.

Section 12.4—CLASS 4, BUSINESS

Class 4. 12.401 Class 4—Business occupancies shall include all buildings or parts of buildings in which goods are manufactured, stored, converted or sold; or in which business or professional services are rendered; such as factories, warehouses, stores, office buildings, and other similar occupancies not included in Class 5 occupancies.

Construction Height and Area Allowable. (a) The construction, height and area shall be as specified in Chapter IV for Class 4 buildings.

Location. (b) The location shall be as specified in section 4.401 (e).

Light and Ventilation. (c) Light and ventilation shall be as specified in Chapter V.

Exits. (d) Exits shall be as specified in Chapter VI.

Fire Protection. (e) Fire protection appliances shall be installed as specified in Chapter XIII.

Special Hazards. (f) Chimneys and heating appliances shall be installed as specified in Chapter XI.

The handling of any liquids or substances, which will or are liable to generate any inflammable, explosive or poisonous gases, fumes or vapors, in any Class 4 buildings shall be only in such portions of such buildings as are completely separated from the remainder of the building by a fire separation affording at least a 2 hour fire resistance period, with all openings protected by a self-closing or automatic Class B fire door.

Section 12.5—Class 5, HAZARDOUS

Class 5. 12.501 Class 5—Hazardous business buildings shall include all

buildings or parts thereof in which goods are manufactured, stored, converted or sold which involve the handling of highly combustible or explosive materials; such as garages, filling stations, hangars, paint shops, dry cleaning plants, wood working shops and buildings housing other occupancies of similar character.

Construction Height and Area Allowable. (a) The construction, height and area allowable shall be as specified in Chapter IV for Class 5 Buildings with the following additional provisions.

Gasoline filling stations shall not be constructed of type V or VII construction.

Garages if located within the fire limits shall be constructed of type I, II or III construction, except that in one story buildings the roof may be supported on unprotected metal roof trusses.

Any Class 5 building located in the fire limits shall not be constructed of Type V or VII construction.

All buildings used for dry cleaning or dry dyeing shall be of type I or II construction, and shall not exceed 1 story in height and shall be without basement. All buildings used for dry cleaning plants shall be subdivided into floor areas of not to exceed 2500 square feet, separated by unpierced fire walls. Drying rooms shall be separated from the remainder of the building by 2 hour fire resistive walls and all openings shall be protected by self-closing fire doors.

Location. (b) The location of Class 5 buildings shall be as specified in section 4.401, with the following additional provisions: No dry cleaning and dry dyeing plants shall be erected within the fire limits nor shall they be closer than 25 feet to any adjoining lot line or building.

Pumps or other equipment designed to be used for the supplying of fuel to motor vehicles shall be so located that no part of such equipment is within 10 feet of any street line. (For length and location of drop curbs or curb cuts for driveways see Ordinance number 179)

Light and Ventilation. (c) Light and ventilation shall be as specified in Chapter V, with special provisions to adequately care for hazardous conditions caused by the nature of the occupancies.

Exits. (d) Exits shall be provided as specified in Chapter VI.

Fire Protection. (e) Fire protection appliances and equipment shall be installed as specified in Chapter XIII, with the following additional provisions: For each 2,500 square feet of floor area or fraction thereof, and in each room in connection with a class 5 occupancy, there shall be provided at least one 2 1/2 gallon foam type extinguisher, or its equivalent.

All fire extinguishing equipment shall be properly distributed and readily accessible.

Special Hazards. (f) The use, handling, storage and sale of gasoline, fuel oil and other inflammable liquids shall be in accordance with ordinance number 185.

The regulation of the National Board of Fire Underwriters for: Safeguarding Dry Cleaning and Dry Dyeing Plants, Paint Spraying and Spray Booths, Finishing Processes, The Storage and Handling of Photographic and X-Ray Nitrocellulose Films and Nitro-Cellulose Motion Picture Film shall govern insofar as they apply.

Elevated trestles or hoists should be used in preference to pits. Pits may be used if they are provided with a mechanical ventilating system, which shall be operated continuously, and they shall also be provided with permanent fixed illumination. Open air pits may be used without mechanical ventilation if approved by the Building Inspector.

Floors shall be kept clean and free from oil. Heating shall be by steam or hot water only. Heating equipment shall be placed in a detached building or shall be in a separate room used for no other purpose and separated both horizontally and vertically from all other parts of the building by reinforced concrete at least 6 inches thick or masonry 8 inches thick or other construction affording 4 hour fire resistance rating, except that any boiler room located beneath any portion of a garage shall be separated therefrom by a reinforced concrete slab not less than 6 inches thick. All air entering the heat generating plant for combustion purposes shall be drawn from the outside of the building. Openings into main portion of the building from the heater rooms shall be restricted to those necessary for heating pipes and one doorway which shall be provided with a Class A fire door and a sill raised 1 foot above the level of the main floor. Entrance to heater room may be from the outside of the building.

Section 12.6—Class 6, MISCELLANEOUS

Class 6. 12.601 Class 6 buildings include all buildings used as private garages, construction sheds, open sheds, reviewing stands, buildings of a temporary nature and all buildings erected under temporary permit.

Construction, Height and Area Allowable. (a) Construction, height and area allowable shall be as specified in Chapter IV for class 6 buildings.

A private garage (see definition, chapter 2) may be constructed of Type I, II, III, IV, V, VI, or VII construction, providing the allowable areas for the different types of construction are not exceeded.

Private garages of frame construction shall be constructed in accordance with the following provisions:

Walls—Not less than 2 inch by 4 inch wood studding, spaced not over 24 inches on centers, and, unless sheathed with wood sheathing of 1 inch nominal thickness, all corners shall be provided with angle bracing.

Such walls shall be double studded at the corners and unless the roof rafters are directly over the studding the walls shall be double plated at the top.

Roofs—Not less than 2 inch by 4 inch rafters, spaced not over 24 inches on centers, and covered with 1 inch nominal roof boards.

Private garages of frame construction shall not be constructed to afford accommodations for more than 4 cars, unless one hour fire separations are provided so that not more than four cars can be stored between such fire separations.

Location. (b) Private garages and other accessory buildings of frame construction on the same lot with a dwelling shall be not less than 3 feet from the side and rear lot lines and 15 feet from the street line. Where there is an alley at the rear or side of any lot a private garage may be placed directly on such line but shall not project beyond the alley line.

If any portion of such private garage is within 10 feet of the dwelling it shall conform to the requirements for attached garages. [See Sec. 12.302 (f).]

Light and Ventilation. (c) Light and ventilation shall be sufficient for safe and healthful conditions.

Exits. (d) Exits shall be of such number, construction and arrangement so as to provide safe means of egress in accordance with the general provisions of Chapter VI.

Fire Protection. (e) Fire protection apparatus shall be installed when deemed necessary by the Building Inspector.

Special Hazards. (f) Chimneys and heating appliances shall be installed as specified in Chapter XI.

CHAPTER XIII Fire Extinguishing Equipment Section 13.1—STANDPIPES

Standpipe Requirements. 13.101 Standpipes shall be provided and constructed in accordance with the provisions of this section.

Where Required. (a) Standpipes shall be provided in all buildings hereafter erected exceeding 4 stories or 50 feet in height, the height to be measured to the eaves for gable roofs.

Location. (b) Standpipes shall be located within fire resistive stairway enclosures when available. Where buildings do not have such enclosures the standpipes shall be as near a stairway as possible.

Number. (c) The number of standpipes in each building and each section of a building shall be such that all portions of each story of the building are within 30 feet of a hose nozzle attached to not more than 100 feet of hose, which hose shall be attached to the standpipe. There shall also be provided 1 standpipe within 75 feet of every exterior wall of the building.

Size. (d) Standpipes shall be of not less than the following sizes: Height of Building Not over 75 feet, Diameter of Standpipe 4 inches; Not over 100 feet, 6 inches; For buildings over 100 feet, 8 inches.

Outlets. (e) Standpipes shall extend from cellar, or basement, to and through the roof, with a 2 1/2 inch gate valve, a 2 1/2 inch connection and a 2 1/2 inch to 1 1/2 inch reducer located not over 5 feet above the floor in each story. The connection on the roof shall be located in a pent-house or stair enclosure, if either is available above the roof. Proper provisions shall be made to prevent any danger from freezing. The 2 1/2 inch connection shall be a standard Fire Department connection to which the reducer shall be attached, and the hose shall be attached to the outlet of the reducer.

Hose. (f) All required standpipe outlets shall be provided with hose sufficient to reach all parts of the building, but not in excess of 100 feet, which hose shall be attached to the outlets and be available for instant use. Hose shall be not less than 1 1/2 inches in diameter and shall be approved by the Building Inspector. Hose bearing the label of the Underwriter's Laboratories as suitable for the purpose shall be accepted. Each line of hose shall be provided with washers at both ends and be fitted with smooth bore brass pipe or nozzle at least 12 inches long, with a discharge outlet 1/2 inch in diameter. One spencer wrench shall be provided at each outlet.

Material and Connections. (g) Where more than one standpipe is required in a building they shall be connected at their bases by pipes of a size equal to that of the largest standpipe, so that water from any source will supply all the standpipes.

Piping and fittings shall be "Standard" steel or wrought iron where working pressures are not in excess of 125 pounds per square inch, and "Extra Heavy" pipe, valves and fittings shall be used where the working pressures are in excess of 125 pounds per square inch. All piping shall be tested at working pressures, when ready for service, for a period of 2 hours and shall be free from leaks. Tests shall be made in the presence of the representative of the Fire Department.

Siamese Connections. (h) Every standpipe shall be provided with a Siamese connection near the first floor level and shall be provided with a Siamese connection outside of the building and approximately 3 foot above grade. Siamese connections shall be provided with standard 2 1/2 inch Fire Department connections.

Each side of the Siamese connections shall be provided with a clapper valve. Just inside the building a straight-way check valve shall be placed in a horizontal section of pipe.

A drip valve shall be placed between the check valve and Siamese connection to properly drain same and prevent freezing.

Water Supply. (i) Water supply for standpipes shall be from one of the following services:

(1) Gravity tank of 2,000 gallons capacity for one standpipe and an additional 500 gallons capacity for each additional standpipe served. Such tank shall be located at least 20 feet above all outlets except roof outlets. Automatic pump of not less than 500 gallons per minute capacity, capable of maintaining a pressure of 25 pounds per square inch at the highest outlet.

Where a gravity tank is used for a combined supply to standpipes and domestic water supply, the domestic supply pipe shall extend above the bottom of the tank to such a height as will reserve 1,000 gallons for the first standpipe and 500 gallons additional capacity for each additional standpipe.

Exceptions. (j) In building completely equipped with sprinkler system, wet standpipes as required herein may be omitted if dry standpipes are provided and approved in writing by the Building Inspector.

Section 13.2—SPRINKLER SYSTEMS

13.201 Sprinkler systems when required in this Code or when provided to take advantage of the special provisions of this Code, shall be constructed in accordance with the following provisions.

Classification. (a) Sprinkler systems shall be classified as Class A and Class B sprinkler systems, and shall conform to the requirements for their respective class as provided in the following table:

Table with 3 columns: CLASS (A, B), Maximum Number of Sprinkler Heads Allowed on 3/4 inch pipe, and Maximum Area in Square Feet Per Sprinkler Head. Rows include 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 4, 5, 6, 8 inch pipes and 100, 200 square feet areas.

Connection to the Birmingham Water supply to provide the following number of gallons per minute with a residual pressure of 42 pounds per square inch at highest sprinkler head: 500, 250. Automatic approved fire pump supplying the following number of gallons per minute: 500, 250. Gravity tank, the bottom of which is 25 feet above the highest sprinkler head and the