

Chapter 14.84

FIRE CODE

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14.84.010 Definitions.

Chapter 14.08 contains definitions of terms and abbreviations used in this chapter if more specific than those in the International Fire Code. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.020 International Fire Code 2009 Edition Adopted.

(a) Except for those portions specified in subsection (b) of this section and Section 14.84.130, the International Fire Code 2009 Edition is hereby adopted in its entirety for the purpose

of describing regulations governing conditions hazardous to life and property, fire or explosion.

(b) The International Fire Code 2009 Edition is changed in the following respects:

- (1) Add to the list of recognized standards and publications adopted by reference as a part of Section 102.7 of the IFC the 101 Life Safety Code, as published by the National Fire Protection Association, 2009 Edition.
- (2) All appendices to the International Fire Code 2009 Edition, except Appendices A, C and D, are hereby adopted, incorporated by reference and made a part hereof as if fully set forth in this section. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.030 Applicability.

The provisions of this chapter shall supersede Sections 506.1 (Key Box), 508.5.1 (Hydrants) and 903 (Sprinklers), IFC 2009 Edition or current edition as adopted by the City of Lake Stevens pursuant to Section 14.84.020, and shall apply to all commercial occupancy buildings constructed or developed within the City limits, wherein the same shall be served by water mains and fire hydrants capable of delivering the required fire flow and installed as required by this chapter unless specifically exempted thereby, or unless waived or modified by the Fire Marshal pursuant to Section 14.84.100 (Waiver and Modification) hereof. Decisions of the Fire Marshal are deemed to be made in the best interest, and with the concurrence, of an affected Fire District in the absence of any credible evidence to the contrary. A final determination of any dispute relating to an aforementioned Fire Marshal decision shall be made by an Appeals Board established by the City Council. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.040 Fire Marshal Approval.

No project subject to this chapter, other than a building of R-3 and U-1 occupancy under the IBC, shall have final approval until the Fire Marshal has verified that the provisions of this chapter are satisfied. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.050 Hydrants to be Served by Recognized Water Purveyor.

All water mains and fire hydrants required hereunder shall be served by a recognized water purveyor or, in the absence of such, by alternate method(s) as approved by the Fire Marshal, except residential accessory buildings classified under the International Building Code as U with a lot size of 20,000 square feet or greater, whether platted or unplatted, provided there is no conflict with the requirements of the recognized water purveyor serving the building site. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.060 Hydrant Standards.

- (a) Every development (subdivided or unsubdivided) that is served by a public water system shall include a system of fire hydrants sufficient to provide adequate fire protection for the buildings located or intended to be located within such development.
- (b) The presumption established by this chapter is that to satisfy the standards set forth in subsection (c) of this section.
- (c) The following hydrant standards shall apply as set forth herein unless waived or modified pursuant to Section 14.84.100 (Waiver and Modification).
  - (1) Type. Any new hydrant installations under this chapter shall have not less than a five-inch main valve opening, two hose outlets having nominal diameters of two and one-half inches National Standard Thread (NST), and one engine port outlet having a nominal diameter of four and one-half inches NST fitted with a four-

inch Stortz coupling. All hydrant threads shall be National Standard Threads with seven and one-half threads per inch for two-and-one-half-inch hose outlets and four threads per inch for four-and-one-half-inch engine port outlets. Water lines that serve hydrants shall be at least six-inch lines, and, unless no other practicable alternative is available, no such lines shall be dead-end lines. If the hydrant is connected to a dead-end main line, the dead-end lines shall be a minimum of eight inches to the hydrant tee, or larger if necessary to provide required fire flows and be approved by the local water purveyor and the Fire Marshal.

- (2) Spacing.
  - (i) Within areas exclusively developed or being exclusively developed for R-3 or U occupancy, maximum distance from a fire hydrant to a dwelling unit shall be 300 feet along a roadway. The maximum distance between hydrants in residential areas shall be no greater than 600 feet.
  - (ii) For all other occupancy types, the maximum distance from a fire hydrant to a dwelling unit shall be 150 feet along a roadway.
  - (iii) When any portion of a commercial structure to be protected is in excess of 150 feet from the water supply on a public street, and when required by the Fire Marshal, there shall be provided on-site fire hydrants and mains capable of supplying the required fire flow. Water supply may consist of reservoirs, pressure tanks, elevator tanks, water mains or other fixed systems capable of supplying the required fire flow as approved by the Fire Marshal and

- the recognized water purveyor having jurisdiction over said project.
- (3) Location.
- (i) Whenever possible, hydrants shall be located at street intersections; provided, that when such location results in spacing distances greater than allowed by this section, additional hydrants may be required between intersections; provided, further, that when the required fire flow is greater than 2,000 gallons per minute (GPM), the number and location of hydrants shall be approved by the Fire Marshal.
- (ii) For commercial buildings:
- a. The minimum number of public and private hydrants required shall be determined by dividing the required fire flow for the building by 1,000.
- b. Hydrants shall be located no closer than 50 feet to any served building and at no greater distance than 300 feet from any portion thereof.
- c. A hydrant shall be located not more than 100 feet from a sprinkler or standpipe connection.
- (iii) All hydrants shall be accessible to Fire Department apparatus by roadways meeting the requirements of Section 503 of the IFC 2009 Edition.
- (iv) When fire protection facilities are to be installed by the developer or permittee, such facilities shall be installed prior to any combustible construction being installed on site. Water mains and fire hydrants shall be capable of delivering the required fire flow to the site and shall remain the responsibility of the developer until accepted by the recognized water purveyors. When alternate provisions for protection are provided pursuant to Section 14.84.100 (Waiver and Modification) the above requirements may be waived or modified.
- (v) When locating hydrants, consideration shall be given to:
- a. Hazardous operations and the practicality of sound fire service practices (fences, roadways, barriers to operation, etc.);
- b. The recommended location preferred by the purveyor;
- c. The required five-foot vehicle clear zone on each side of each hydrant.
- (4) Installation. Hydrants shall stand plumb and be set to the finished grade. The bottom of the lowest outlet of the hydrant shall be no less than 18 inches or more than 36 inches above the grade. There shall be a 36-inch radius of clear area about the hydrant for the operation of hydrant wrench on the outlets and the control valve. The engine port shall face the street or, where the street cannot be clearly identified, shall face the most likely location of a fire truck while pumping, as determined by the Fire Marshal.
- (d) Fire hydrants shall be protected from damage. Internal maintenance of public fire hydrants shall be the responsibility of the recognized water purveyor. Private hydrants shall be protected and maintained in accordance with NFPA 24. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.070 Piping and Flow Standards.

The following standards relating to water mains, hydrant branches, and fire flow shall apply, unless waived or modified pursuant to Section 14.84.100 by the Fire Marshal:

- (a) Hydrant Branches. Hydrant branches shall not have a domestic supply outlet and shall meet the design standards of the Snohomish County Public Utilities District No. 1.
- (b) Service Main. New or replaced water mains serving fire hydrants shall meet the design standards of the Snohomish County Public Utilities District No. 1.
- (c) Flow Requirements. Service mains supplying hydrants shall be designed to provide not less than 500 GPM at 20 pounds per square inch residual pressure over and above the computed maximum daily domestic consumption for the period of time specified in the Washington Survey and Rating Bureau's Grading Schedule, Table 4. In addition, service mains supplying hydrants shall provide the fire flow required to each building covered thereby at the number of GPM specified in IFC 2006 Edition, Appendix B, except as to single-family dwellings. The Fire Marshal may require data or design standards from a registered professional engineer, and construction in accordance therewith, in order to assure that the fire flow required will be achieved. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.080 Plan Approval Required.

- (a) Prior to the installation of any new hydrants or mains serving hydrants, the developer shall provide plans for review to the recognized water purveyor and Fire Marshal.
- (b) Upon completed installation, and acceptance by the recognized water purveyor and the Fire Marshal, the Fire Marshal shall be provided with two copies of the accurate and identifiable as-built drawings or plans showing the location of all mains, hydrant branches, valves and fire hydrants installed. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.090 Plan Submittal Review.

The Fire Marshal, prior to the issuance of a development permit for any new or altered com-

mercial building, plat development or residential complex, shall certify that the plans have been reviewed. If the plans are found to be in compliance with this chapter, a notice of approval for issuance of a building permit shall be forwarded to the Building Official. Such approval shall be based on the provisions of this chapter being satisfied either:

- (a) Prior to start of any construction;
- (b) Prior to the issuance of the certificate of occupancy for the building. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.100 Waiver and Modification.

- (a) The Fire Marshal may, subject to acceptance of recognized water purveyor, grant a waiver of or modification to the standards contained in Sections 14.84.060 (Hydrant Standards) and 14.84.070 (Piping and Flow Standards) if strict compliance with such standards would create a substantial hardship on the applicant and where such a waiver or modification does result in adequate fire protection.
- (b) Waivers or modifications shall be in writing, state the reasons therefor, and be provided to the fire district with which jurisdiction lies over the project. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.110 Obstruction Prohibited - Declared Nuisance - Abatement.

Obstructing the view, by any means, of a fire hydrant for a distance of 75 feet from any direction of vehicular approach is prohibited. Any violation of this section is declared a public nuisance, subject to immediate abatement and application of the civil penalty provided for herein. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.120 Authority of Water Purveyor.

Nothing in this chapter, nor any rules and regulations as may be adopted by the Fire Marshal pursuant to this chapter, shall be construed to pro-

hibit water purveyors from imposing more stringent requirements for the construction of water mains and fire hydrants. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.130 Subsection 903 IFC 2009 Edition Superseded.

Subsection 903 of the IFC 2009 Edition is deleted in its entirety and replaced by Sections 14.84.140 through 14.84.170. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.140 Fire Extinguishing Systems.

- (a) Fire extinguishing systems required in this fire code shall be installed in accordance with the requirements of this section.
  - (1) The Fire Department hose connections shall not be attached to an exterior wall of the protected structure. The location of the Fire Department hose connections shall be approved by the Fire Marshal.
  - (2) Rooms housing the control valves and sprinkler riser(s) shall be located in such a manner as to allow the door to exit directly to the outside of the structure. The room shall not be used for the storage of any material. This standard is not required in R-3 and R-4 occupancies.
  - (3) A Knox Box key box shall be installed per Fire Department guidelines at each fire sprinkler riser room.
    - (i) Keys to the riser room, main entrance, fire alarm panel, pull stations, and elevator are to be locked inside the key box.
    - (ii) Whenever the main entrance is located more than 100 feet away from the riser room key box, a second key box shall be installed at the main entrance.
  - (4) In buildings used for high-piled combustible storage, fire protection shall be in accordance with Chapter 23 of the IFC.

- (b) For the purposes of this section, area separation walls shall not define separate buildings.
- (c) Alternative automatic fire extinguishing systems complying with Section 904, IFC 2009, shall be permitted in lieu of automatic sprinkler protection where recognized by the applicable standard and approved by the Fire Marshal. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.150 Automatic Fire Extinguishing Systems Required.

- (a) Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in this section with the exception of spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic fire alarm system and are separated from the remainder of the building by a wall with a fire-resistance rating of not less than one hour and a floor/ceiling assembly with a fire-resistance rating of not less than two hours.
  - (1) All newly constructed structures in excess of 10,000 square feet shall be provided with an approved automatic sprinkler system.
  - (2) Any existing structure that is modified to increase the square footage of the structure shall be provided with an approved sprinkler if the total square footage of the new and existing areas exceeds 10,000 square feet.
- (b) An automatic sprinkler system shall be installed in the following Group A occupancies:
  - (1) An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For

- Group A-1, A-2, A-3, and A-4 occupancies, the automatic sprinkler system shall be provided throughout the floor area where the Group A-1, A-2, A-3 or A-4 occupancy is located, and in all floors between the Group A occupancy and the level of exit discharge. For Group A-5 occupancies, the automatic sprinkler system shall be provided in the spaces indicated in subsection (b)(6) of this section.
- (2) Group A-1. An automatic sprinkler system shall be provided for Group A-1 occupancies where one of the following conditions exists:
    - (i) The fire area exceeds 10,000 square feet (929 square meters);
    - (ii) The fire area has an occupant load of 300 or more;
    - (iii) The fire area is located on a floor other than the level of exit discharge; or
    - (iv) The fire area contains a multi-theater complex.
  - (3) Group A-2. An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:
    - (i) The fire area exceeds 5,000 square feet (464.5 square meters);
    - (ii) The fire area has an occupant load of 300 or more; or
    - (iii) The fire area is located on a floor other than the level of exit discharge.
  - (4) Group A-3. An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:
    - (i) The fire area exceeds 10,000 square feet (929 square meters);
    - (ii) The fire area has an occupant load of 300 or more; or
    - (iii) The fire area is located on a floor other than the level of exit discharge.
  - (5) Group A-4. An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:
    - (i) The fire area exceeds 10,000 square feet (929 square meters);
    - (ii) The fire area has an occupant load of 300 or more; or
    - (iii) The fire area is located on a floor other than the level of exit discharge.
  - (6) Group A-5. An automatic sprinkler system shall be provided in concession stands, retail areas, press boxes, and other accessory use areas in excess of 1,000 square feet (93 square meters).
  - (7) Group B. An automatic sprinkler system shall be provided throughout buildings containing a Group B occupancy where one of the following conditions exists:
    - (i) Where a Group B fire area exceeds 10,000 square feet (929 square meters);
    - (ii) Where a Group B fire area is located more than three stories above grade; or
    - (iii) Where the combined area of all Group B fire areas on all floors, including any mezzanines, exceeds 10,000 square feet (929 square meters).
    - (iv) An automatic sprinkler system shall be installed throughout all fire areas containing a Group B ambulatory health care facility occupancy when either of the following conditions exists at any time:
      - a. Four or more care recipients are incapable of self-preservation.
      - b. One or more care recipients who are incapable of self-pres-

ervation are located at other than the level of exit discharge serving and occupancy.

- (8) Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:
  - (i) Throughout all Group E fire areas greater than 10,000 square feet (929 square meters) in area.
  - (ii) Throughout every portion of educational buildings below the level of exit discharge.
  - (iii) Throughout all newly constructed Group E occupancies having an occupant load of 50 or more for more than 12 hours per week or four hours in any one day. A minimum water supply meeting the requirements of NFPA 13 2010 Edition shall be required. The fire marshal may reduce the fire flow requirement for buildings that are protected by an approved automatic sprinkler system.

For the purpose of this section, additions exceeding 60 percent of the value of such building or structure, or alterations and repairs to any portion of a building or structure within a 12-month period that exceed 100 percent of the value of such building or structure, shall be considered new construction.

Exceptions:

Portable school classrooms shall be exempt from the requirement contained in this subsection (b)(8), provided the aggregate area of clusters of portable school classrooms does not exceed 5,000 square feet and clusters of portable school classrooms shall be separated as required in Chapter 5 of the 2009 International Building Code.

Group E Day Care. When not required by other provisions of this chapter, a fire extinguishing system installed in accordance with NFPA 13 may be used for increases and substitutions allowed in Sections 504.2 and 506.3 (Automatic Sprinkler System Increase) and Table 601 (Fire-Resistance Rating Requirements for Building Elements) of the International Building Code, 2009 Edition.

- (9) Group F. An automatic sprinkler system shall be provided throughout all buildings containing a Group F occupancy where one of the following conditions exists:
  - (i) Where a Group F fire area exceeds 10,000 square feet (929 square meters);
  - (ii) Where a Group F fire area is located more than three stories above grade; or
  - (iii) Where the combined area of all Group F fire areas on all floors, including any mezzanines, exceeds 10,000 square feet (929 square meters).

Woodworking Operations. An automatic sprinkler system shall be provided throughout all Group F-1 occupancy fire areas that contain woodworking operations in excess of 2,500 square feet in area (232 square meters) which generate finely divided combustible waste or which use finely divided combustible materials.

- (10) Group H. An automatic sprinkler system shall be installed in high-hazard occupancies.
  - (i) Group H-5 Occupancies. An automatic sprinkler system shall be installed throughout buildings con-

taining Group H-5 occupancies. The design of the sprinkler system shall not be less than that required under the International Building Code for the occupancy hazard classifications in accordance with the following table.

**Group H-5 Sprinkler Design Criteria**

Location	Occupancy Hazard Classification
Fabrication areas	Ordinary Hazard Group 2
Service corridors	Ordinary Hazard Group 2
Storage rooms without dispensing	Ordinary Hazard Group 2
Storage rooms with dispensing	Extra Hazard Group 2
Corridors	Ordinary Hazard Group 2

Where the design area of the sprinkler system consists of a corridor protected by one row of sprinklers, the maximum number of sprinklers required to be calculated is 13.  
 Pyroxylin Plastics. An automatic sprinkler system shall be provided in buildings, or portions thereof, where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg).

- (11) Group I. An automatic sprinkler system shall be provided throughout buildings with a Group I fire area.  
 Exception: An automatic sprinkler system installed in accordance with Section 14.84.160(c), (d) or (e) shall be allowed in Group I-1 facilities.
- (12) Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

- (i) Where a Group M fire area exceeds 10,000 square feet (929 square meters);
- (ii) Where a Group M fire area is located more than three stories above grade; or
- (iii) Where the combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 10,000 square feet (929 square meters).
- (iv) Where occupancies display or sell upholstered furniture regardless of fire area square footage.  
 High-Piled Storage. An automatic sprinkler system shall be provided as required in Chapter 23 of the IFC in all buildings of Group M where storage of merchandise is in high-piled or rack storage arrays.

- (13) Group R. An automatic sprinkler system installed in accordance with Section 14.84.160 shall be provided throughout all buildings with a Group R fire area to include R-1, R-2, and R-3 occupancies. Exceptions:  
 R-1 congregate living facilities (transient) with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.  
 R-3 buildings that do not contain more than two dwelling units. Adult care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Child care facilities that provide accommodations for five or fewer persons of any age for less than 24 hours. Congregate living facilities with 16 or fewer persons. Adult care within a single-family home, adult family homes and family child day care homes are permitted to comply with the International Residential Code 2009 Edition. Foster family care homes licensed by Washing-

- ton State are permitted to comply with the International Residential Code 2009 Edition, as an accessory use to a dwelling for six or fewer children including those of the resident family.
- (14) Group S. An automatic sprinkler system shall be provided throughout all buildings containing a Group S occupancy where one of the following conditions exists:
- (i) Where a Group S fire area exceeds 10,000 square feet (929 square meters);
  - (ii) Where a Group S fire area is located more than three stories above grade plane; or
  - (iii) Where the combined area of all Group S fire areas on all floors, including any mezzanines, exceeds 10,000 square feet (929 square meters).
  - (iv) A Group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 10,000 square feet (929 square meters).
    - a. Repair Garages. An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406 of the International Building Code 2009 Edition, as follows:
      - 1. Buildings two or more stories in height, including basements, with a fire area containing a repair garage exceeding 10,000 square feet (929 square meters).
      - 2. One-story buildings with a fire area containing a repair garage exceeding 10,000 square feet (929 square meters).
      - 3. Buildings with a repair garage servicing vehicles parked in the basement.
      - 4. A Group S-1 fire area used for the repair of commercial trucks or buses where the fire area exceeds 10,000 square feet (929 square meters).
      - b. Bulk Storage of Tires. Buildings and structures where the area for the storage of tires exceeds 20,000 cubic feet (566 cubic meters) shall be equipped throughout with an automatic sprinkler system in accordance with Section 14.84.160(a).
- (15) Group S-2. An automatic sprinkler system shall be provided throughout buildings classified as an enclosed parking garage in accordance with Section 406.4 of the International Building Code 2009 Edition.
- (i) Where enclosed parking garage is located beneath other groups. Exception: Enclosed parking garages located beneath Group R-3 occupancies.
  - (ii) Where the fire area of the enclosed parking garage exceeds 10,000 square feet (929 square meters).
  - (iii) Commercial Parking Garages. An automatic sprinkler system shall be provided throughout buildings used for commercial storage of automobiles, trucks or buses.
- (16) All Occupancies Except Groups R-3 and U. An automatic sprinkler system shall be installed in the locations set forth in subsections (b)(16)(i) through (iv) of this section. Exception: Group R-3 and Group U.
- (i) Stories and Basements without Openings. An automatic sprinkler system shall be installed in every

- story or basement of all buildings where the floor area exceeds 1,500 square feet (139.4 square meters) and where there is not provided at least one of the following types of exterior wall openings:
- a. Openings below grade that lead directly to ground level by an exterior stairway complying with Section 1009 of the IFC or an outside ramp complying with Section 1010 of the IFC. Openings shall be located in each 50 linear feet (15,240 millimeters), or fraction thereof, of exterior wall in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15,240 mm).
  - b. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 meters squared) in each 50 linear feet (15,240 mm) or fraction thereof, of exterior wall in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15,240 mm).
- (ii) **Opening Dimensions and Access.** Openings shall have a minimum dimension of not less than 30 inches (762 millimeters). Such openings shall be accessible to the fire department from the exterior and shall not be obstructed in a manner that fire-fighting or rescue cannot be accomplished from the exterior.
    - (iii) **Openings on One Side Only.** Where openings in a story are provided on only one side and the opposite wall of such story is more than 75 feet (22,860 mm) from such openings, the story shall be equipped throughout with an approved automatic sprinkler system, or openings as specified above shall be provided on at least two sides of the story.
    - (iv) **Basements.** Where any portion of a basement is located more than 75 feet (22,860 millimeters) from openings required by subsection (b)(16)(i) of this section, the basement shall be equipped throughout with an approved automatic sprinkler system.
    - (v) **Rubbish and Linen Chutes.** An automatic sprinkler system shall be installed at the top of rubbish and linen chutes and in their terminal rooms. Chutes extending through three or more floors shall have additional sprinkler heads installed within such chutes at alternate floors. Chute sprinklers shall be accessible for servicing.
    - (vi) **Buildings More Than 55 Feet in Height.** An automatic sprinkler system shall be installed throughout buildings with a floor level having an occupant load of 30 or more that is located 55 feet (16,764 millimeters) or more above the lowest level of fire department vehicle access.
 

Exceptions:

      - a. Airport control towers.
      - b. Open parking structures.
      - c. Occupancies in Group F-2.
    - (vii) **During Construction.** Automatic sprinkler systems required during construction, alteration and demolition operations shall be provided in

accordance with Section 1413 IFC 2009 Edition.

- (viii) Ducts Conveying Hazardous Exhausts. Where required by the International Mechanical Code, automatic sprinklers shall be provided in ducts conveying hazardous exhaust, flammable or combustible materials.  
Exception: Ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 millimeters).
- (ix) Commercial Cooking Operations. An automatic sprinkler system shall be installed in a commercial kitchen exhaust hood and duct system where an automatic sprinkler system is used to comply with Section 904 of the IFC.
- (x) Other Required Suppression Systems. In addition to the requirements of this section, the provisions indicated in the following table also require the installation of a suppression system for certain buildings and areas.

Section	Subject
914.2.1	Covered malls
914.3.1	High rise buildings
914.4.1	Atriums
914.5.1	Underground structures
914.6.1	Stages
914.7.1	Special amusement buildings
914.8.2, 914.8.5	Aircraft hangers
914.9	Flammable finishes
914.10	Drying Rooms
914.11.1	Group B ambulatory health care facilities
1028.6.2	Smoke-protected seating

Section	Subject
1208.2	Dry cleaning plants
1208.3	Dry cleaning machines
1504.2	Spray finishing in Group A, E, I, or R
1504.4	Spray booths and rooms
1505.2	Dip-tank rooms
1505.4.1.1	Dip tanks
1505.9.4	Hardening & tempering tanks
1803.10	HPM facilities
1803.10.1.1	HPM work station exhaust
1803.10.2	HPM gas cabinets
1803.10.3	HPM corridors
1803.10.4	HPM exhaust
1803.10.4.1	HPM noncombustible ducts
1803.10.4.2	HPM combustible ducts
1907.3	Lumber production conveyer rooms
1908.7	Recycling facility conveyer rooms
2106.1	Class A & B ovens
2106.2	Class C & D ovens
Table 2306.2	Storage fire protection
2306.4	Storage
2703.8.4.1	Gas rooms
2703.8.5.3	Exhausted enclosures
2704.5	Indoor storage of hazardous materials
2705.1.8	Indoor dispensing of hazardous materials
2804.4.1	Aerosol warehouses
2904.5	Storage of more than 1,000 cubic feet of loose combustible fibers
3306.5.2.1	Storage of smokeless propellant
3306.5.2.3	Storage of small arms primers
3404.3.7.5.1	Flammable & combustible liquid storage rooms
3404.3.8.4	Flammable & combustible liquid storage warehouses

Section	Subject
3405.3.7.3	Flammable & combustible liquid gas Group H-2 or H-3 areas
3704.1.2	Gas cabinets for highly toxic & toxic gas
3704.1.3	Exhausted enclosures for highly toxic & toxic gas
3704.2.2.6	Gas rooms for highly toxic & toxic gas
3704.3.3	Outdoor storage for highly toxic & toxic gas
4104.2.2	Exhausted enclosures or gas cabinets for silane gas
4204.1.1	Pyroxylin plastic storage cabinets
4204.1.3	Pyroxylin plastic storage vaults
4204.2	Pyroxylin plastic storage & manufacturing
4603.4.1	Pyroxylin plastic storage in existing buildings
4603.4.2	Existing Group I-2 occupancies
International Building Code	Sprinkler requirements as set forth in Section 903.2.13 of the International Building Code

(Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

**14.84.160 Installation Requirements.**

Automatic sprinkler systems shall be designed and installed in accordance with this section.

- (a) NFPA 13 Sprinkler Systems. Where the provisions of this fire code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 2010 Edition except as provided in this chapter.
- (b) Exempt Locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in

accordance with Section 907.2 of the IFC that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance-rated construction or contains electrical equipment.

- (1) Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
  - (2) Any room or space where sprinklers are considered undesirable because of the nature of the contents, when approved by the Fire Marshal.
  - (3) Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than two hours.
  - (4) In rooms or areas that are of noncombustible construction with wholly noncombustible contents.
  - (5) Fire service access elevator machine rooms and machinery spaces.
- (c) NFPA 13R Sprinkler Systems. Where allowed in buildings of Group R, up to and including four stories in height, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R 2010 Edition.
- (1) Balconies. Sprinkler protection shall be provided for exterior balconies and ground floor patios of dwelling units where the building is of Type V construction. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within one inch (25 mm) to six inches (152 mm) below the structural members, and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies that are constructed of open wood joist construction.  
Exception: Sprinkler protection is exempt if there is no roof, canopy or

- upper deck projecting over the balcony or deck.
- (d) NFPA 13D Sprinkler Systems. Where allowed, automatic sprinkler systems installed in one- and two-family dwellings shall be installed throughout in accordance with NFPA 13D 2010 Edition.
- (e) Quick-Response and Residential Sprinklers. Where automatic sprinkler systems are required by this fire code, quick-response or residential automatic sprinklers shall be installed in the following areas in accordance with NFPA standards and other listings:
- (1) Throughout all spaces within a smoke compartment containing patient sleeping units in Group I-2 in accordance with the International Building Code.
  - (2) Dwelling units and sleeping units in Group R and I-1 occupancies.
  - (3) Light-hazard occupancies as defined in NFPA 13 2010 Edition.
- (f) Obstructed Locations. Automatic sprinklers shall be installed with due regard to obstructions that will delay activation or obstruct the water distribution pattern. Automatic sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands, or equipment that exceeds four feet (1,219 mm) in width. Not less than a three-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of combustible fibers.  
Exception: Kitchen equipment under exhaust hoods protected with a fire-extinguishing system in accordance with Section 904 of the IFC.
- (g) Actuation. Automatic sprinkler systems shall be automatically actuated unless specifically provided for in this fire code.
- (h) Water Supplies. Water supplies for automatic sprinkler systems shall comply with this section and NFPA standards. The potable water supply shall be protected against backflow in accordance with the requirements of this section and the Uniform Plumbing Code 2009 Edition.
- (1) Domestic Services. Where the domestic service provides the water supply for the automatic sprinkler system, the supply shall be in accordance with this section.
  - (2) Limited Area Sprinkler Systems. Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:
    - (i) Valves shall not be installed between the domestic water riser control valve and the sprinklers.  
Exception: An approved indicating control valve supervised in the open position in accordance with Section 14.84.170.
    - (ii) The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by 13, NFPA 13R or NFPA 13D 2010 Edition.
  - (3) Residential Combination Services. A single combination water supply shall be permitted; provided, that the domestic demand is added to the sprinkler demand as required by NFPA 13R 2010 Edition.
  - (4) Secondary Water Supply. A secondary on-site water supply equal to the hydraulically calculated sprinkler demand, including the hose stream requirement, shall be provided for high-rise buildings in Seismic Design Category C, D, E or F as determined by the International Building Code. The secondary water supply shall have a duration not less than 30 minutes as determined by the occupancy hazard classification in accordance with

NFPA 13 2010 Edition. Exception:  
Existing buildings.

- (i) Hose Threads. Fire hose threads used in connection with automatic sprinkler systems shall be approved and shall be compatible with Fire Department hose threads. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008)

14.84.170 Sprinkler System Monitoring and Alarms.

- (a) Alarms. A fire alarm enunciator panel shall be installed in the fire sprinkler riser room. This panel shall have capabilities to view the activated zone and be able to silence and reset the alarm.
- (b) All valves controlling the water supply for automatic sprinkler systems, pumps, tanks, water levels and temperatures, critical air pressures and water flow switches on all sprinkler systems shall be electrically supervised by a listed fire alarm control panel.

Exceptions:

- (1) Automatic sprinkler systems protecting one- and two-family dwellings.
  - (i) Automatic sprinkler systems installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the automatic sprinkler system, and a separate shutoff valve for the automatic sprinkler system is not provided.
  - (ii) Jockey pump control valves that are sealed or locked in the open position.
  - (iii) Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
  - (iv) Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
  - (v) Trim valves to pressure switches in dry, preaction and deluge sprinkler

systems that are sealed or locked in the open position.

- (c) Signals. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved central station, remote supervising station or proprietary supervising station as defined in NFPA 72 2010 Edition or, when approved by the Fire Marshal, shall sound an audible signal at a constantly attended location.

Exceptions:

- (1) Underground key or hub valves in roadway boxes provided by the City of Lake Stevens or public utility are not required to be monitored.
- (2) Backflow prevention device test valves, located in limited area sprinkler system supply piping, shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 2010 Edition and separately annunciated.
- (d) Alarms. Approved audible devices shall be connected to every automatic sprinkler system. Such sprinkler water flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system.
- (e) Floor Control Valves. Approved supervised control valves shall be provided at the point of connection to the riser on each floor in high-rise buildings.
- (f) Testing and Maintenance. Sprinkler systems shall be tested and maintained in accordance with Section 901 IFC 2009 Edition, NFPA 13 2010 Edition and NFPA 72 2010 Edition.

- (g) Existing Buildings. The provisions of this section are intended to provide a reasonable degree of safety in existing structures not complying with the minimum requirements of the International Building Code by requiring installation of an automatic fire-extinguishing system.
- (1) Pyroxylin Plastics. All structures occupied for the manufacture or storage of articles of cellulose nitrate (pyroxylin) plastic shall be equipped with an approved automatic fire-extinguishing system where required in Chapter 46 IFC 2009 Edition.
  - (2) Group I-2. An automatic sprinkler system shall be provided throughout Group I-2 fire areas where required in Chapter 46 IFC 2009 Edition. (Ord. 833, Sec. 3 (Exh. B), 2010; Ord. 775, Sec. 16, 2008; Ord. 694, Sec. 2, 2004; Ord. 657, Sec. 4, 2001; Ord. 468, Sec. 3, 1995)

