



Residential Fire Sprinklers Systems – Are they required?

Overview:

This handout outlines the conditions under which an automatic residential fire sprinkler system is required. The requirements for installation of an automatic residential fire sprinkler system are intended to mitigate certain life-safety issues relating to emergency access, water supply (where required), and anticipated response times.

What triggers a fire review of my construction (building) permit?

All new construction at residential properties¹, any addition to an existing structure, and/or a remodel undergoing a substantial improvement as defined in King County Code (KCC) Title 21 §21A.06.

A one-time exemption for buildings regulated by the International Residential Code (IRC) shall be allowed for a single addition not to exceed 500 (gross) sq. ft. unless sprinklers or other fire protection systems are required by other statutes. *[Ref: KCC Title 17 §17.04.520 Exception]*

Requirements for Residential Properties:

Residential structures with habitable spaces, including adult family homes, are required to have an automatic residential fire sprinkler system installed in the following conditions:

- A. Residential structures on properties over 35,000 sq. ft. in rural zones without an adequate fire apparatus access. *[Ref: KCC Title 17 §17.04.560]*
- B. Residential structures on properties under 35,000 sq. ft. in rural zones, and all properties in urban zones, that are not provided with the following: *[Ref: KCC Title 17 §17.04.560]*
 - 1. The minimum fire department apparatus access road as defined by the International Fire Code (IFC), as amended by Washington State.
 - 2. Water supply from a utility providing at least 1,000 gallons per minute as defined in IFC Appendix B.
 - 3. A fire hydrant within 600 feet of the property, as measured by vehicular travel.
- C. Residential structures over 10,000 sq. ft. in floor space regardless of acceptable access and water availability. *[Ref: KCC Title 17 §17.04.560]*
- D. Adult family homes with a capacity of seven or eight that serves residents who require assistance during an evacuation. *[Ref: 2021 IFC §903.2.8.5, as amended by Washington State]*
- E. Residential structures that are not allowed under the IRC. *[Ref: KCC Title 17 §17.04.560]*

¹ Residential property includes single family residences, duplexes, and townhomes (up to four units), and accessory structures.

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Residential additions and remodels requiring the installation of a sprinkler system will also require that the existing portion of the residence be retrofitted with fire sprinklers.

Temporary and medical hardship mobile homes may be exempt from water, access, and sprinkler conditions for a period of one year. *[Ref: KCC Title 17 §17.62.010]*

Fire Access Road Requirements:

A fire apparatus access road (also known as a fire lane) can be a driveway, easement, public, or private road that meets the requirements of KCC Title 17 as listed below:

- A. 20-foot-wide unobstructed permanent all-weather driving surface suitable for all-weather driving and capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds
- B. All portions of the exterior walls of residential structures (at grade) must be within 150 feet from an approved fire apparatus access road.

For additional guidance, refer to Appendix A of the [Residential Fire Access and Water Supply Checklist](#).

- C. Maximum grade of 15-percent from the proposed structure to the nearest fire station.
- D. Vertical clearance of 13 feet 6 inches from the proposed structure to the nearest fire station.
- E. Minimum of 20-foot inside turning radius and 40-foot outside turning radius at all bends and turns. A fire apparatus access road or driveway over 150 feet long is required to have an approved hammer head turn-around configuration. In some cases, a circular 80-foot diameter turn-around may be acceptable.

Note: Turn-around facilities cannot be located on driveways. *[Ref: King County Dept of Transportation, [2016 Road Services Division, Standards](#): Figure 2-012 Hammerhead Turnaround]*

Water Availability:

Applicants may obtain information regarding fire hydrant distances and water supply (fire flow) from the local Water District or utility in the form of a [Water Availability Certificate](#). Minimum water supply (fire flow) is in accordance with IFC Appendix B:

0 – 3,600 square feet	Minimum 1,000 gpm for a duration of minimum 1 hour
3,601 – 4,800 square feet	Minimum 1,750 gpm for a duration of minimum 2 hours
4,801 – 6,200 square feet	Minimum 2,000 gpm for a duration of minimum 2 hours
6,201 – 7,770 square feet	Minimum 2,250 gpm for a duration of minimum 2 hours
7,701 – 9,400 square feet	Minimum 2,500 gpm for a duration of minimum 2 hours
9,401 – 11,300 square feet	Minimum 2,750 gpm for a duration of minimum 2 hours

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Properties that rely on well water, where a water supply from a water utility is not available and the lot is in a rural-zoned area less than 35,000 sq. ft., residential fire sprinklers will be required to be installed.

For rural-zoned lots over 35,000 sq. ft., a water supply for fire flow is not required to be submitted and shall only be required to meet the fire apparatus access road requirements.

For urban-zoned properties less than 2,500 sq. ft. (including garage), a water supply for fire flow is not required to be submitted and shall only be required to meet the fire apparatus access road requirements.

Water availability certificates are valid for a specific timeframe (typically 1-year from issuance). The certificate of water availability will provide an expiration date.

Fire Access Road Improvements vs. Sprinkler System Installation:

On-site fire apparatus access improvements may be submitted for review and approval to avoid the installation of a fire sprinkler system. When submitting the construction permit for the residence, a site plan is required to be submitted to King County for review and approval. The submitted site plan must show all proposed access improvements to meet the current King County standards and have adequate water availability (where required). The building and/or grading permit must be issued prior to the start of any on-site improvements.

Please note that any on-site improvements may trigger additional disciplines to review the submittal. These disciplines will review for clearing and grading, critical areas, wetland mitigation, drainage improvements and/or impervious surface limitations. Additional permits, reviews, and conditions may delay the permitting process and add to the cost of the permit.

If off-site access does not meet requirements of the King County standards, a fire sprinkler system will be required unless a separate permit is submitted for review and approval.

Forms to submit with your construction (building) permit application:

To avoid delays in the fire review of your applications, please ensure the following documents are submitted with your construction (building) permit:

1. [Site Plan, General](#)
2. Architectural floor plan
3. [Residential Fire Access and Water Supply Checklist](#)
4. [Water Availability Certificate](#) (when required)

Will the sprinkler submittal delay my construction (building) permit?

No, adding a fire sprinkler system to your project will not delay the review and/or issuance of your building permit. Fire sprinkler permits are separate permits and can be listed as a deferred submittal on your project.

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Fire sprinkler system permits should not be submitted to King County until the construction permit has been approved. If submitted prior to approval of building permit, your fire sprinkler permit application may be voided or held for review until the construction permit has been approved.

What is required for a fire sprinkler system?

We have put together a handout to assist with what is needed throughout the fire sprinkler process – from submitting your application to the final inspection (and everything in-between). Here is a link to that handout: [Residential Fire Suppression Sprinkler Submittal Information](#)

Continued on next page.

Questions?

If you have further questions regarding your project, please submit a site plan along with your questions to fmo.dper@kingcounty.gov.

Additional Resources:

King County [Department of Local Services, Permitting Division](#)

[Water Availability Certificate](#)

[Residential Fire Access and Water Supply Checklist](#)

[Residential Fire Suppression Sprinkler Submittal Information](#)

King County Code – [Title 17](#)

King County, Department of Transportation, [2016 Road Services Division, Standards](#)

National Fire Protection Association - [Home Fire Sprinklers | NFPA](#)

National Fire Protection Association – [NFPA 13D](#) (UpCodes free version)

National Fire Sprinkler Association - [Sprinkler Insulation: A Literature Review](#), April 2020

Washington State Patrol - [Fire Protection Bureau](#) *Note: This website also provides a list of licensed contractors with their certificate level of competency.*

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